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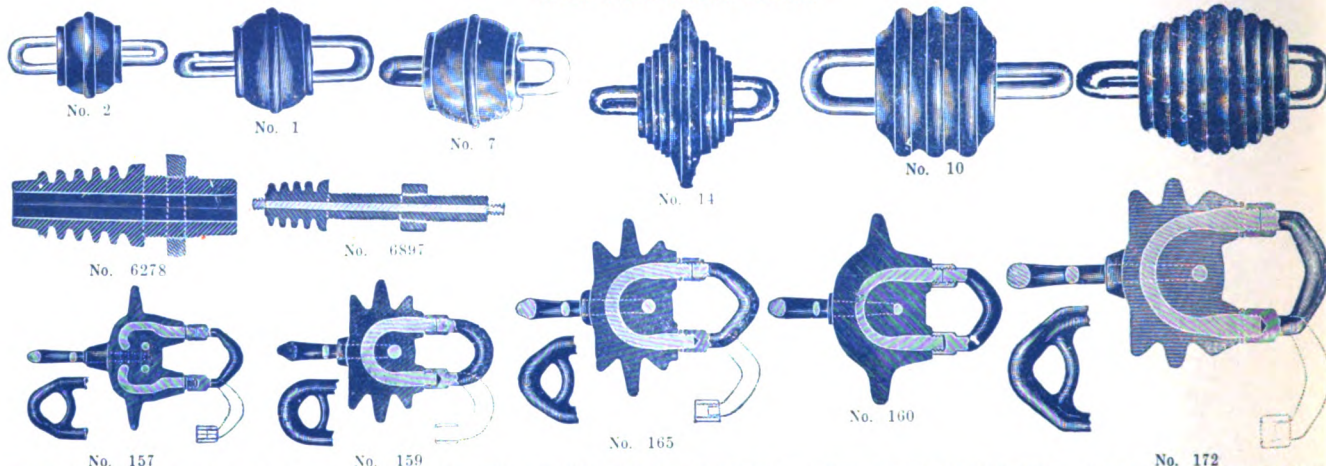
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VOL. 50

NEW YORK

OCTOBER, 1920

CLEVELAND

No. 10

Why Not Try the Accelerator

Shipping Board Has Wound Up Year of Inaction and Delay—Should Act Quickly in Carrying Out Law

DURING recent weeks the general public has had its attention drawn to different phases of the work of the shipping board which dim what glory that body has maintained to itself during the strenuous days of war and the equally rugged days of peace. These conditions are generally familiar to marine men but a brief review should assist in judging what the board has done or is likely to do in building up American shipping.

For instance, the country has just celebrated with appropriate press notices the first annual memorial to the great *LEVIATHAN*. Seized under the rules of war, her mechanical defects corrected by American engineers, this great liner set remarkable records in carrying troops to France. She was honored by being selected to bring home General Pershing on what proved to be her final voyage. Since that time she has remained at the dock at an estimated carrying charge of \$5000 a day. The shipping board had its best opportunity to sell her last winter but a court injunction prevented the public learning whether or not the board would have sold her to the two companies submitting bids. Since that time a new call for bids brought out lower offers. The board from now on can hardly expect to obtain equally high bids. While the past year of inaction has been filing by and a second year of little promise is opening, the huge liner's principal rivals have been converted to oil burners and under the British flag are setting new speed records.

A Hurried Call for Bids

The action of the shipping board in announcing a sales policy and calling for bids on all its steel ships also wins little confidence in the ability of this large federal organization to function satisfactorily, particularly in carrying out the express decree of congress to transfer the government fleet into private hands as quickly as possible.

A rapid action camera has been required to keep record of the constantly moving membership of the board ever since its organization. As a result only

two members were in office when the new shipping act became law. Apparently these members, through their chairman, decided to await the appointment of the new board before making any important decisions. Months have rolled by, however, with no announcement from the White House until finally the depleted board decided to make progress on its own account. The result was an announcement of a scale of ship prices considerably below the figures held to rigidly during the winter and spring but, gaging by recent private sales, figures that are now too high. Bids were called for on such short notice that practically no response was received. It is difficult to decide just what the board learned by its hurried call for bids. A lower schedule of prices shows an appreciation of a declining market but does not reveal the desire of a firm under legal order to go out of business, to dispose of its assets at attractive prices.

Quicker Action Is Essential

The country has had every right to expect that the passage of the new shipping act would be followed by prompt action on the part of those under legal order to carry the law into effect. Successful competition in world's shipping comes primarily not only from an intimate knowledge of the business but from the ability to make and carry out quick decisions. The private investor would expect bankruptcy if he took three or four months to name his board of managing directors as is being done in the failure to organize the new board ordered by congress last June.

Federal authorities had their best opportunity of selling out in the months immediately following the armistice when ship values were still high. Keener business judgment is required in handling the sale of several billion dollars worth of property on a falling market so that the longer the shipping board has put off the wholesale selling of its fleet, the more difficulty it is finding and will find. Prompt action at Washington is the first step necessary to prevent filling in the gap between the small wooden vessels idle at one port—the huge *LEVIATHAN* rusting at another.

World Charter Market Reviewed by

SEEK BUSINESS

Some Ocean Lines Cut Freight Rates as Competition Grows Keen—More New Lines Are Started

SHIPPING is passing through a stagnant condition which has been financially disastrous to the operators. Further political trouble in Europe, coupled with a decided decline in exchange rates, resulted in a stoppage of shipments. This came atop of the usual normal seasonal decline experienced during July and August. The French line began to cut rates about two months back. The Belgian line joined in this move which came to a head last month. The foreign fleets were aroused by the encroachments of the American ships and sought in this manner to fight them. The British, Dutch and other interests however, have religiously adhered to the freight conferences. On top of it all, reports have been received that some foreign lines are offering deferred rebates; a thing particularly forbidden by American shipping laws. To determine the truthfulness of this, the shipping board has initiated an investigation.

Pronounced competition with foreign fleets has been somewhat offset by a few advances in the freight rates. The coal trade improved after the shipping board withdrew its vessels from that business. The coastwise lines, which were decidedly pinched, were at last granted a substantial increase in rates. Another encouraging factor is the improvement in labor conditions. It has been estimated that the average turnaround in American ports has been 35 days. During the period of the past difficulties, vessels remained in the port of Baltimore for an average of 42 days, in New York 38 days, in Norfolk 35 days, in Philadelphia 21 days and in Boston 15 days. But last month the coastwise dockers voted to end their strike and ever since conditions have been improving.

Charter Market Is Firm

A slight improvement has been noted in the charter market. The demand for spot tonnage has been much stronger than that open for future delivery, while private owners have continued their efforts to establish an increase in freights for both prompt and future vessels. European Atlantic rates have been bringing from \$12 to \$15, while Scandinavian ranged from \$14 to \$15.50. The Mediterranean trade has remained dull. More demand has been shown for vessels to the east coast of South America. Charterers have been offering \$13 to Buenos Aires for prompt vessels. Several orders have been noted to the west coast but rates have been apparently unattractive to owners. The usual moderate demand for a few vessels in the West Indies trade has been evident, but the market has not been active.

Time charter rates have remained strong at or about \$5 per ton, with most offerings for short term

contracts. A few new orders have appeared in the market for small vessels. The freight market to South America and the West Indies has advanced, while the European ports rates have been firmer. The demand for coal carriers has remained active and a number of fixtures have been daily reported.

Germany is now shipping salt to the United States, which indicates the constant change in the nature of ocean shipping. But the most noted change during the past month was that in coal. The embargo at Virginia cities was raised, and most of the government vessels withdrawn. As a result the rates advanced approximately \$2. Now England is threatened with another coal and transportation strike which, if it develops, will give another incentive to this trade.

Little encouragement has been given the European trade during the past two months. The trouble in Poland and central Europe generally resulted in an advance in war risk insurance on shipments stored in European warehouses. Then sympathetic Irishmen attempted to tie up British ships in American ports, but without serious results. Transatlantic passenger liners report a decided slump in business. Some are inclined to the opinion that this slump is not only due to the usual seasonal change, but also to the fact that the passenger fares are too high.

Operators Broaden Services

One of the interesting aftermaths of the big Harriman deal, was the purchase by A. W. Harriman of the Kerr fleet of ships. This gives Mr. Harriman complete control of the big shipping combine initiated by the American Ship & Commerce Corp. Messrs. Kerr and Clegg, however, declare they will reinvest their money in shipping board vessels and continue in the shipping business. The Kerr line is giving special attention to its India freight service and it is understood they will go into this berth on a big scale. Kermit Roosevelt, who was secretary of the American Ship & Commerce Corp.

before Harriman bought in, will go with Messrs. Kerr and Clegg. The first of the passenger boats built for the Emergency Fleet corporation, the PANHANDLE STATE, is ready for service and will be operated by the United States Mail line between New York and London. The Canada Steamship lines has been appointed the sole passenger

U. S. Sailors in Lead

OF ALL seamen on American vessels, according to the bureau of navigation, 50.5 per cent are American born or naturalized. In all, there are 334,140 American seamen of all nationalities and of these 137,016 were born in this country while 31,777 are naturalized citizens. The percentage of Americans in the merchant marine is higher than ever before. In 1918 it was down to 41.9 per cent. Seamen must sign the ship's articles in the presence of shipping commissioners when shipping on an American ship for voyages overseas or to South and Central American ports; optional to Canada, the West Indies and Mexico, and to domestic ports.

Experts in This Country and Abroad

and freight agent in Canada of the United States Mail line.

The J. H. W. Steele Steamship Co. is to furnish steamers to maintain the service formerly rendered by the North German Lloyd between Bremen and Hamburg and New Orleans, Galveston and other gulf ports, as well as from Germany to Cuban and Mexican ports. The Luckenbach line has purchased the steamer MARICA from the shipping board. Victor S. Fox and his associates have received the last of the 12 steamers purchased from the shipping board. Five ships sold to the Green Star line have been recovered by the shipping board, and assigned to their former purchasers for operation. No reason for canceling this sales contract has been given. The Atlantic, Gulf & West Indies line expects to make some developments costing approximately \$60,000,000, including the building of tankers in this country.

Among the additions noted in the South American trade are services inaugurated by the Grace line between Baltimore and ports in Chile and Argentina; a service by the Carib Trading Co. between New York and Puerto Colombia, Cartagena, Santa Marta, San Andres, Kingston and Santiago, and a freight service by the Federal Steamship Co. between Pacific ports of the United States and west coast ports of South America.

Foreign Companies Active

The Compania Sud Americana de Vapores will have a freight and passenger service from New York direct to Peruvian and Chilean ports. The Norwegian South American line will have a new service with calls at South American east coast ports, and a Dutch company is said to be planning to connect Santander and other north Spanish ports with New Orleans, Havana and Mexico.

The Royal Holland Lloyds are inaugurating a new service between New York and Amsterdam with the Dutch steamer KENNEMERLAND. Funch, Edye & Co. will be the American agents.

The Royal Mail Steam Packet Co. is to start a regular passenger line from New York to Jamaica, Colon, Cartagena, Trinidad and Barbados. The Messageries Maritimes will have a new cargo line from Antwerp to India. The Associated Dutch Shipping Co. is to establish a new line from Rotterdam to Australian ports to be known as the Holland-Australia line. Hugo Stinnes

Denies Tax Report

ACCORDING to a recent statement made by Admiral Benson, reports that the officials of the internal revenue bureau had begun an investigation of shipping board accounts with the object of checking up income tax returns of steamship operators are ungrounded. No request has been made by internal revenue authorities for an investigation of the shipping board's records. Considerable interest has been aroused in board circles by the action of revenue officials in New York in seizing the funds paid by Mr. Harriman to the officials of the Kerr Steamship Co. but this is considered a matter in which the shipping board is not concerned.

PLAN BIG SHIPS

Various American Lines Expect to Let Contracts for Passenger Boats — Pacific Trade Is Quiet

and other wealthy German interests are said to have created the Cie Columbus A. G. at Danzig for the purpose of carrying on shipping ventures. Poland, however, it is said, will create a merchant marine of its own, the country having purchased 12 steamships aggregating 59,396 deadweight tons. Additional steamers are to be acquired in England and the United States.

The Transatlantica Italiana and the Soc. Nazionale di Navigazione will inaugurate a passenger service between Genoa and Valparaiso, via the Panama canal. Norton, Lilly & Co. are booking a passenger service from New York to New Zealand and Australia. The sailings are under the British flag. Lloyd Brasileiro is being subjected to a complete reorganization. Its European services are to be discontinued, with the possible exception of its line between Brazil and Hamburg. It is understood, however, the services to the United States will be increased employing 10 of the largest and best vessels owned by the company. The Chilean government is expected to take under serious consideration the advisability of establishing a national marine. The republic of Hayti is said to plan a steamship line with native capital, principally for the sugar export trade.

Anticipating an improvement at some near date in the future, American steamship owners are proceeding slowly with their building programs. Many companies have been granted exemptions from the profits taxes because they have contracted with American yards to build new ships, and this provision in the new shipping act will undoubtedly encourage more such undertakings. The American line, it was announced last month, will shortly let contracts for two 600-foot passenger liners. These are to be 20-knot boats. The Red D line will probably let contracts for two 380-foot passenger ships, and the American Ship & Commerce Corp. expects to begin the construction of two 600-foot passenger ships. The New York & Porto Rico line will rebuild the liner BRAZOS.

Western Market Is Weak

In sympathy with other markets, freights on the Pacific are weak and chartering is inactive. Sailing vessels are in fair demand but steamers are in ample supply. Conditions in general are in a most unsettled state. Charterers are proceeding with caution as many astute followers of the market anticipate further reductions in the near future.

During the past month, declines have taken place in several directions. All offshore lumber freights have dropped from \$2.50 to \$5 per thousand and the

market is soft. The big sensation of the month was the cut in grain and flour freights from north Pacific ports to the United Kingdom initiated by the shipping board. The government rate was fixed at \$20 on Aug. 1 to either Great Britain or north continent ports. Inasmuch as the previous rate had been \$28 to United Kingdom and \$29 to continent, the sharp cut caused a temporary flurry. The shipping board's object is said to have been the desire to divert surplus foodstuffs to Pacific terminals in order to relieve congestion at eastern ports and to bring railroad equipment to the coast.

Present indications are that there will be a fairly heavy movement of grain and flour from north Pacific ports this season but until the shipping board's policy and the amount of government tonnage available for this business is made apparent, exporters are extremely chary about making additional commitments. Practically all of the food administration's flour has already been shipped and the market is now awaiting opportunity to adjust itself following the shipping board's bid for new business. It is believed that the bulk of the exports will be in the form of wheat and barley, as was the case prior to the war, instead of flour which has predominated during the last three seasons.

Oriental Trade Is Dull

On the oriental route, business is light and freights are weak. While the westbound lines are holding fairly well to the new tariffs, which include steel at \$11, some efforts at rate cutting have been attempted by tramps, one offer having been made at \$7.50. Eastbound tonnage is bringing but little cargo and no improvement in the oriental commerce is anticipated for at least 60 days.

The probable effects of the Jones bill, especially section 28, are still worrying the representatives of foreign lines. None of these companies has actually moved from Pacific ports yet but judging by reports from Japan, the Nipponese companies are preparing to start a rate war. Each side appears to be waiting for the other to move and in the meantime everyone is in a state of expectancy. The fact that the Japanese companies have withdrawn from the Oriental conference, because they wish to be free to act as occasion may require, is regarded as significant.

Information from Japan is to the effect that many small steamers are idle and others are being added to the "boneyard" fleets, because of unprofitable business. Japanese owners are having their vessels turned back to them upon expiration of charters and they are now seeking business themselves. Time charter rates in Japan have dropped from 14.50 yen last December to 7.50 yen in June.

Charters of the month include two large steel steamers to carry railroad ties from north Pacific to Great Britain at the prevailing rate of \$45. In the local charter market, \$20 is being offered for tonnage to carry coal from Puget sound to Scandinavian ports, \$34 for lumber to Sydney and New Zealand, \$37 to Melbourne and Adelaide, \$50 for creosoted railroad ties to Bombay, \$20 for lumber to Cuba, \$30 to west coast South America, \$14 to Honolulu and \$55 to South Africa. Several sailing ships have recently been fixed for lumber at private terms which indicates a soft market. The Pacific-Caribbean-Gulf line has been inaugurated and will operate on a monthly basis between New Orleans and Pacific coast ports.

Boston Lines Expand

The canceling of sailings of export coal by the shipping board, while materially benefitting New England coal consumers, has at the same time hurt Boston shipping interests, as many of the offshore coal carriers were owned at that port. Shipping during the month has continued about on the level of the previous month. More interest, however, seems to be developing in the port on the part of shippers and several new lines are about to be started.

The North Atlantic & Western Steamship Co. will inaugurate a line between Boston and Liverpool and Glasgow. Two ships for this purpose have already been allocated by the shipping board. The Barber Steamship Lines, Inc., have made arrangements to operate steamers from Boston to the Far East. Cargo will be taken for ports in China, Japan and the Philippines. The North Atlantic & Western Steamship Co., together with the Dollar Steamship Co., has completed arrangements to have Manila made a port of call in the oriental service. New England manufacturers can, therefore, now make shipment direct from Boston to the Philippines.

Lines to the Mediterranean ports have been carrying full cargoes from Boston, the principal items being automobiles, machinery, shoes, leather, flour and grain. Shipments to Baltic and North Sea points have fallen off. The reason given in some cases is the political unrest of the countries concerned. Scandinavian markets have taken a favorable aggregate of machine tools and manufactured articles. One vessel sailing for Antwerp near the end of August carried 700 cases of machinery, 1500 boxes of tin plate with the balance of the cargo made up of shoes, shoe blanks, pulp, and leather. The WEST ARCOVAR, sailing for Havre, carried a cargo made up largely of New England machinery, including crankshafts and mill supplies. Imports have included old rope and waste paper from London, rubber and jute from India, oil from Mexico, matches and wood pulp from Copenhagen, plumbago, rubber, tea and burlaps from the Philippines, wool, skins, hides and glue stock from South America, and unusually large cargoes of sugar from Cuba.

Aids New England Ports

The future of the port of Boston has been the subject of much discussion among shipping circles. The effect of the freight advance cannot yet be determined, although most interests feel it will work to the advantage of Boston through the improvement of railroad shipping conditions and also because of the lower relative rate to foreign countries from New England originating points.

Heavy grain shipments are expected through the fall at Portland, Me. Connecticut manufacturers have taken an increased interest in the port of New London, Conn., and arrangements have been made for the use of the recently completed \$1,000,000 state pier at that port in connection with the new 4-steamer service between New London and Norfolk, Va. The number of vessels passing through the Cape Cod canal during July was 1008, which is the highest figure for July in the canal's history. August figures are expected to surpass this total, on account of the increased movement of coal. During the latter part of August transatlantic passenger vessels left American ports about 65 per cent full.

Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

New York to	Grain	Provisions	Cotton (H. D.)	Flour	General Cargo cu. ft.	100 lbs.	‡Finished Steel	Coal from Virginia cities
Liverpool	\$ 0.50	\$ 1.00	\$ 1.80	\$ 0.65	\$ 0.50	\$ 1.00	\$10.00 T	.....
London	0.50	1.00	1.80	0.65	0.50	1.00	10.00 T	.....
Christiania	1.05	1.25	2.00	1.05	0.70	1.50	12.00 T	\$14.50 T
Copenhagen	1.05	1.25	2.00	1.05	0.70	1.50	12.00	14.50 T
Hamburg	0.40	0.85	1.50	0.65	0.60	1.20	15.00 T	14.50 T
Bremen	0.40	0.85	1.50	0.65	0.60	1.20	15.00 T	14.50 T
Rotterdam	0.40	0.65	1.25	0.50	0.50	1.00	10.00 T	12.50 T
Antwerp	0.45	0.65	1.57½	0.45	0.50	1.00	8.00 T	12.50 T
Havre	0.70	0.75	1.82½	0.90	0.60	1.25	8.00 T	12.50 T
Bordeaux	0.70	0.75	1.82½	0.90	0.60	1.25	8.00 T	12.50 T
Barcelona	30.00 T	30.00 T	2.25	30.00 T	—30.00 T—	—	18.00 T	14.50 T
Lisbon	30.00 T	30.00 T	2.25	30.00 T	—30.00 T—	—	18.00 T	13.50 T
Marseilles	0.75	1.25	1.92½	1.25	0.70	1.50	15.00 T	14.50 T
Genoa	0.70	1.10	1.47½	1.00	0.65	1.20	12.00 T	14.00 T
Naples	0.70	1.10	1.47½	1.00	0.65	1.20	12.00 T	14.00 T
Constantinople ...	18.00 T	25.00 T	....	18.00 T	—28.00 T—	—	....	17.00 T
Alexandria .....	....	1.12	....	18.00 T	0.62½	1.12	15.00 T	17.00 T
Algiers .....	....	1.65	....	20.00	0.87½	1.56¼	15.00 T	15.00 T
Dakar	23.00 T	23.00 T	....	23.00 T	—28.00 T—	—	20.00 T	.....
Capetown	30.00 T	27.00 T	....	30.00 T	—27.00 T—	—	20.00 T	.....
Buenos Aires ....	....	....	....	....	—20.00 T—†	—	12.00 T†	14.50 T
Rio de Janeiro....	....	....	....	....	—18.50 T—†	—	12.50 T†	15.00 T
Pernambuco .....	....	....	....	....	—19.00 T—†	—	13.00 T†	15.00 T
Havana	0.55	0.63	....	0.55*	0.94*	1.00*	0.71*	6.00 T
Valparaiso	1.25	1.25	1.16	1.16	0.70	1.25	18.00 T	.....
San Francisco....	....	2.50	....	0.85	....	....	1.00	.....
Sydney .....	....	....	....	....	25.00 to 30.00 T	—	15.00 T	.....

T—Ton. †Landed. ‡Heavy products except rails. *Extra charge for wharfage.

From North Pacific Ports to	Lumber Per M. ft.
San Francisco	\$ 9.00
Southern California	10.50
Hawaiian Islands	16.00 to 18.00
New Zealand	30.00
Sydney	30.00
Melbourne-Adelaide	33.00

From North Pacific Ports to	Flour and Wheat Per Ton
Oriental ports	\$10.00
United Kingdom	20.00
Scandinavia	20.00

From North Pacific Ports to	Lumber Per M. ft.
Peru-Chile	\$30.00
South Africa	52.50
Cuba	19.00 to 20.00
Oriental ports	25.00
United Kingdom	60.00
United Kingdom (ties).....	45.00

From North Pacific Ports to	Steel Per Ton
Oriental ports	\$11.00
From North Pacific ports to	Cotton Per Ton
Oriental ports	\$20.00 to 25.00

Principal Rates to and From United Kingdom

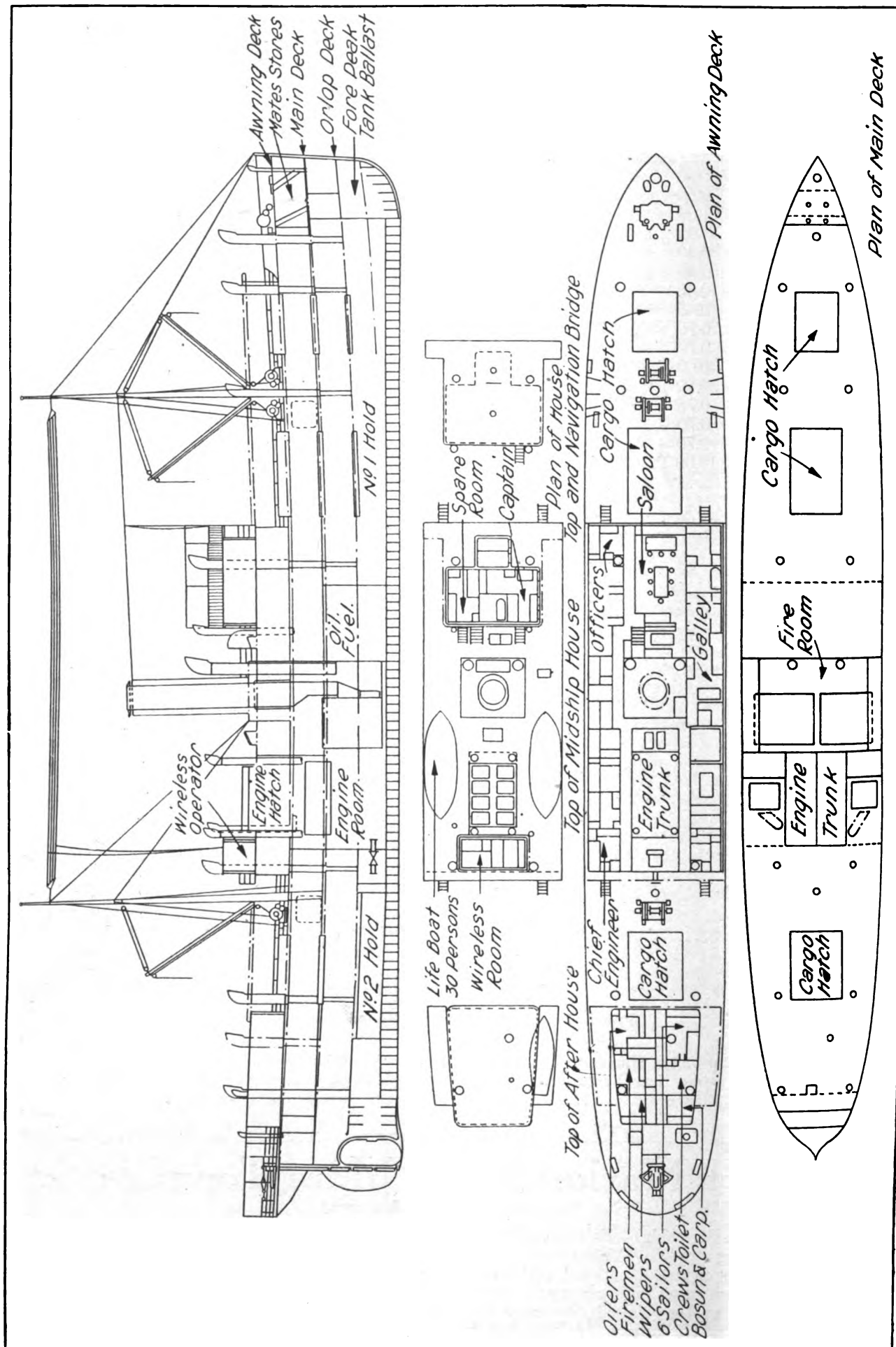
	s	d		s	d
Grain, River Plate to United Kingdom.....	85	0	Iron ore, Bilboa to Middlesborough.....	17	0
Coal, South Wales to the Near East.....	27	6	General British market, six months time		
Coal, Newcastle to France.....	25	0	charters, per ton per month.....	13	0

Quiet Market Finds More Tonnage

(From Our European Manager.)

London, Sept. 11.—(By cable)—Easier conditions prevail in the shipping trades. Vessel tonnage is more plentiful. Threats to call a national coal strike dominate the general situation and act as a check on industry. Coal from the United States to the continent is the most active branch of the charter

market and the demand has brought rates to \$13 to Antwerp and \$14 to Copenhagen. River Plate to the United Kingdom is more active at higher rates but the Far Eastern trade continues dull at steady rates. On account of fewer steamers offering, coal exports, except to British coaling stations, are small.



GENERAL ARRANGEMENT OF 237-FOOT FRUIT AND PASSENGER STEAMER BUILT AT BROOKLYN FOR DONALD LINE

Fruit Steamer of Modern Design

Vessel for Fruit and Passenger Trade Has Special Arrangements for Insuring Correct Ventilation

ON JULY 20, the Todd Shipyards Corp., launched from its Tebo Yacht Basin yard the first fruit steamer built in Brooklyn. This vessel, christened the *ORMES*, is being built for the Donald Steamship Co. While she measures but 1200 deadweight tons and is designed for the transportation of fruit, the vessel will have passenger accommodations. Next to tankers, fruit steamers are today in greatest demand by steamship companies and this special kind of work offers some interesting developments. The Todd corporation has contracted to build a companion ship to the *ORMES* for the same shipping company.

The *ORMES* measures 227 feet in length between perpendiculars, or 238 feet 8 inches over all. Her molded beam is 33 feet 8 inches and her depth is 16 feet to the upper deck and 23 feet 6 inches to the awning deck. She is an oil burner with triple expansion engines of 1400 indicated horsepower and will have a speed of $12\frac{1}{2}$ knots. The vessel is of the awning deck type, with steel superstructures on the awning deck for housing the officers and crew. She has two permanent continuous decks the full length of the ship, and a wood orlop deck with steel beams forward and aft of the machinery space. The holds are fitted for fruit throughout and are well ventilated by natural draft.

The stem is a bar of rolled steel 2 x 8 inches. The propeller post is a steel forging 5 x 7 inches and the rudder post is 5 x $6\frac{1}{4}$ inches. The gudgeons have lignum vitae bushings. The heel of the propeller post is dropped and is extended well forward to take the keel plate. The lower gudgeon has a hard steel button for carrying the weight of the rudder. The keel is of the flat plate type, 41 inches wide. The rudder is of the single plate type. A cellular double bottom has been built to carry oil, except under the engine boilers, where it is to carry feed water. Two tanks are provided forward of the machinery space for oil fuel, divided by a center girder, making four tanks in all, having independent filling and suction pipes.

The vessel is fitted with a forward collision bulkhead, after collision bulkhead, oil bunker bulkheads, center line bulkheads, screen bulkhead and after engine bulkhead. Trimming tanks are formed by the forward and after peaks, and are arranged for salt water use. Fresh water tanks are placed on

the upper deck in the wings on each side of the engine casing. These tanks, two in number, each hold 1250 gallons. They are well supported and strapped to the hull and fitted with outlet, filling and vent pipes, and with means for determining the water level.

Two ports are installed on each side of the boat. These are about 6 feet long by 5 feet 6 inches high. These ports are framed and fitted with dogs. Four sets of round-bar, swinging type davits are supplied and fitted for boats. The davits are of sufficient height and spread to lift the boats out of their chocks and swing them clear of the ship's side. They are fitted with blocks and falls, operating and releasing devices, spans, guys, etc.

The vessel is rigged as a 2-mast schooner with two trysails and jib. The lower masts are steel, strongly built and suitably stiffened by doublings. Jackstays are riveted on for trysails. Topmasts are wood. The standing rigging is cast steel galvanized wire, set up with turnbuckles. A galvanized wire rope signal stay is fitted between the foremast head and funnel, complete with necessary halyards. Rigging is served for 8 feet up. Two cargo booms are on the foremast and one on the mainmast of 5-ton capacity. Wood poles for jack and ensign staffs, with trucks, heel castings and keepers are supplied.

Design of Passenger Spaces

The saloon and adjoining state-rooms are finished inside with Washington cedar styles painted white. The beams are cased in with facing and beading in the throats. Ceiling panels are of a composition. The saloon has dining table with fiddle racks sideboard, medicine chest and revolving chairs. The staterooms have one berth each, seat, locker, mirror and washbasin. Drawers are fitted under the berths. All the furniture is Philippine mahogany. The bathroom walls are enameled white. In the midship house also will be found the captain's and officer's quarters. The crew's quarters are in the after house. Skylights are fitted over the engine room galley, crew's messroom and pantry. The galley is located in the central house. The pantry is located aft of the saloon.

Thirteen ventilators are 24 inches in diameter above the deck, 18 inches

and 12 inches in between deck. One 26-inch diameter and four 16-inch diameter sheet steel ventilators with revolving cowl heads are fitted to ventilate the fruit holds. The ventilators in the fruit spaces reach down to the lower holds where practicable. One 9-inch diameter ventilator is fitted to the shaft alley; one combination 10-inch and 7-inch to fore peak storeroom, two 9-inch to after peak storeroom and one 12-inch to galley. In addition three 6-inch mushroom ventilators are fitted.

A steam capstan with warping drum is located on the stern for warping the vessel. A steam brake windlass is fitted forward. A steering engine is placed on the awning deck inside of the engine casing at aft end. The shaft projects through the bulkhead with drum to take leads. A brass stand, with small wheel, is placed on the bridge and is fitted with shafting, drums, gear, etc., to operate the transmission shafts to the engine. A screw hand steering gear is fitted directly over the rudder stock on the awning deck.

There are three horizontal steam winches, fitted with gear to lift five tons at slow speed. Two double acting pumps, to be worked by hand, are fitted, one on top of crews' house and one in wake of the boiler casing.

Fresh water supply to plumbing fixtures is taken from the ship's fresh water tanks. The supply to the galley is from drinking water tanks only. The salt water supply for showers, bath tubs and for flushing closets comes direct from the sea. The salt water pressure flushing system is maintained by the steam pump in the engine room. A complete heating system has been installed, embracing all living quarters. Furthermore there are steam heating pipes in the holds, taking steam from the auxiliary steam line.

Additional equipment includes one main engine, one surface condenser, one main independent air pump, one ballast and wrecking pump, independent main and auxiliary feed pumps, one donkey and fire pump, one direct connected bilge pump on the main engine, one centrifugal circulating pump and engine, one ice machine, one feed water heater, sanitary and general service pumps, two return tube Scotch boilers fitted with Howden draft, complete oil fuel installation, and other necessary machinery. The main propelling engine is of the

vertical inverted type, surface condensing, 3-cylinder triple-expansion, right hand when working in the ahead motion. The cylinders are 19 x 32 x 52 inch diameter and 36-inch stroke. The working pressure is 180 pounds per square inch. This engine will develop not less than 1400 indicated horsepower at 100 revolutions per minute.

There is one propeller, four bladed right hand, cast solid of manganese bronze, about 12 feet 6 inches in diameter. This is keyed to the steel shaft and is held in place with a steel nut.

The vessel has two cylindrical, single end boilers, of the Scotch type,

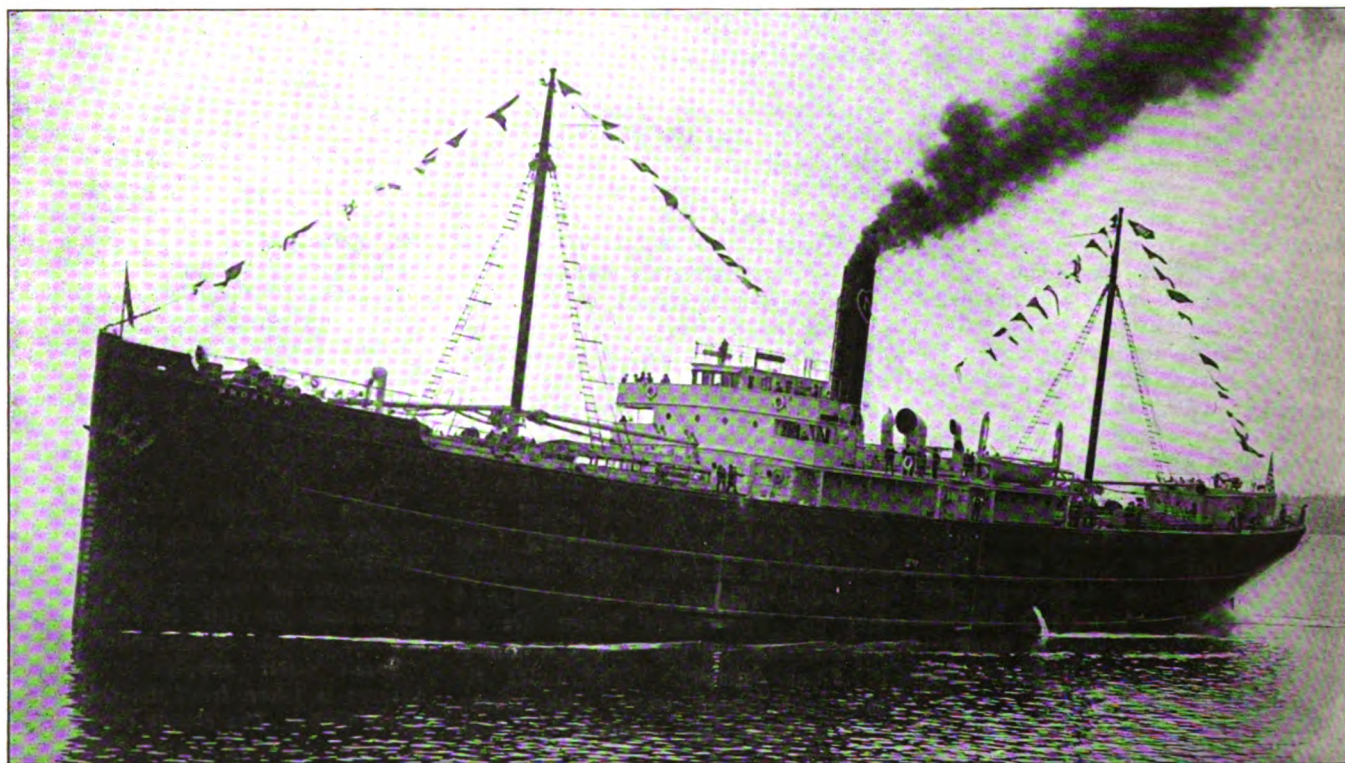
and strainers are in duplicate and of such capacity that either set is capable of operating the system efficiently at maximum power of propelling plant. The electric plant consists of one 10-kilowatt direct-connected generating set, compound wound for 110 volts.

Wooden Ships of Record Size Are Speedy

Registering from Seattle, the new steamers BROXTON and SNOQUALMIE, said to be the largest wooden carriers afloat, have just been placed in commission. The BROXTON is carrying a

& Trading Co., Seattle, is handling the fleet and already plans are under way for regular service to the Siberian port. H. H. Hammer, president of the Universal Shipping & Trading Co., is highly pleased with the performance of these converted wooden carriers and believes that this fleet will vindicate those who have faith in the economical and profitable operation of the wooden steamship.

While the first three vessels of the fleet are 3500-ton freighters of the Ferris type, unusual interest attaches to the BROXTON and SNOQUALMIE because of their great size and their performance will be closely watched. The



STEAMSHIP BROXTON, ONE OF TWO LARGEST WOODEN CARRIERS AFLOAT

Built at Seattle for the shipping board, this hull and that of her sister ship, Snoqualmie, were purchased and completed by the National Oil Co. With three slightly smaller wooden ships, they are operated by the Universal Shipping & Trading Co.

13 feet inside diameter and 11 feet 6 inches long over head plates, constructed for a working pressure of 180 pounds per square inch. The effective heating surface in each boiler is 1890 square feet. Each boiler has three furnaces. The combustion chambers are independent, one to each furnace. The boilers are fitted with patent forced draft system together with air heaters and tubes, air casings, spiral retarders in boiler tubes, etc. The furnace fronts are of the single action safety type, complete with doors, valves, air distributing boxes and all mounting, designed for the use of oil fuel.

The ORMES has a complete installation for the use of 14 degree Beaume oil as fuel, with pressure system design, arranged for atomizing without steam or compressed air. The oil pumps, heaters

cargo of lumber to Melbourne and the SNOQUALMIE to Sydney, Australia.

These vessels are hulls built for the shipping board at the Seattle plant of the Puget Sound Bridge & Dredging Co. They are of a special design, evolved by L. E. Geary, a Seattle naval architect. After lying idle for several months, they were purchased by the National Oil Co. and completed at Seattle with shipping board engines and equipment.

The National Oil Co. purchased, in addition, three Ferris-type hulls, the ADRIA, AGYLLA and AGRON, all being outfitted and placed in commission as steamers. The entire fleet is now at sea carrying lumber and upon their return it is the intention to place them in service between Seattle and Vladivostok, Siberia. The Universal Shipping

entire fleet was outfitted under the direction of John A. Sims, representing the owners.

The BROXTON and SNOQUALMIE measure 330 feet over all, and 315 feet between perpendiculars. The extreme beam is 49.8 feet, molded depth 32.25 feet and depth of hold 29.6 feet. Their deadweight is 5500 tons, gross tonnage 3585 and net tonnage 2664. Their lumber carrying capacity is somewhat over 2,000,000 feet. They are equipped as coal burners because of the difficulty in obtaining fuel oil in foreign ports. However, they can easily be converted into oil burners. The engines are 1400 horsepower, single screw. On her trial, the BROXTON developed 11.28 knots and the SNOQUALMIE 11.357 knots. The vessels have large hatches and roomy holds and are elaborately fitted up for both officers and crew.

Begin Study of Lake Loadline

Government Committee Starts Investigation to Determine Strength of Lake Vessels and Their Proper Load Draft

SINCE 1876, foreign-owned seagoing vessels have been subject to freeboard regulation, in one form or another, and in recent years a loadline mark, assigned by one of the leading ship classification societies, under government supervision, has been made compulsory.

Vessels on the Great Lakes have, so far, come under no such restrictions. As a result, no data have been kept making it impossible to say how many of the losses among lake vessels have been due to overloading.

At a conference held some time ago in Washington by Secretary Redfield, the United States Government Committee on Bulkheads and Freeboard, of which Rear Admiral D. W. Taylor, United States navy, is chairman, was appointed by the secretary in order that certain rules and regulations which were necessary for the assignment of freeboards for American ships might be recommended to him, with the idea that sooner or later a freeboard law would be passed in this country.

In order to properly carry out this work, the committee decided to form three subcommittees; one for the Atlantic coast; one for the Great Lakes; and one for the Pacific coast.

The Great Lakes committee con-

sists of H. N. Herriman, manager of the Great Lakes department, American bureau of shipping, and H. C. Sadler, professor of naval architecture and marine engineering, University of Michigan, Ann Arbor, Mich. They will appoint a subcommittee of representative shipowners, shipbuilders and underwriters to assist them in their work. The personnel of this committee will be announced later.

Realizing the benefit to be derived from a thorough investigation of the whole subject, upon which recommendations to the government will be based when the work is completed, a fund has been subscribed by vessel owners, shipbuilders and underwriters, to defray expenses, and an office established at 870 Kirby building, Cleveland, under the direct supervision of Mr. Herriman. Percy W. Keltie, naval architect, formerly in the employ of the United States shipping board and the Chicago Technical Board of Vessel Safety, is in general charge of the work of the office. Prof. Anders F. Lindblad, assistant professor of naval architecture at the University of Michigan, is now engaged in an investigation of the structural strength of the various types of vessels in service on the Great Lakes, this being a feature of greatest importance in determining

the proper load draft. Miss A. Eiben, secretary to the committee, is in charge of the records.

In addition to considering the freeboard, the committee will take up the matter of watertight subdivision and the investigation will be extended to cover loading and ballasting, stability, and structural details, such as deck erections, hatches, steering gear, etc.; also general statistics on Great Lakes navigation, covering all important features.

At the close of the season, a number of conferences will be held, attended by shipowners, shipbuilders and masters of the vessels, at which all of the above features will be fully discussed.

As no data on the lengths and heights of storm waves on the Great Lakes are available, the following letter has been issued by the committee and mailed to masters, requesting that the information, which is very necessary to the committee in its work, be secured by the masters and crews of the vessels. It will be obvious to all familiar with shipping that the work of the freeboard committee, designed to safeguard lives and property on the Great Lakes, is one of the most important ever undertaken in the interest of the owners, underwriters and crews.

How to Find Wave Height and Length

THE length and corresponding height of the waves is the principal factor in determining, by calculation, the stresses to which the hull of a vessel is subjected in heavy weather. It is, therefore, desirable that we obtain data on this subject from actual observation of the storm waves. We believe, that if the masters and crews of vessels on the Great Lakes will kindly lend their assistance, observations may be taken by them practically without apparatus other than a trim gage, that will give us the desired information.

We would require the following:

First:—The length of the largest storm waves, from crest to crest, with their period, that is, the time in seconds taken by the crest to travel from point to point.

Second:—The heights of the largest storm waves, from trough to crest, if

How Lake Masters and Crews Can Help

IN THE following letter to masters of lake vessels, the Great Lakes subcommittee on bulkheads and freeboard suggests a simple method of determining the length and height of storm waves. Data of this kind have never been obtained on the lakes and must be secured before the committee can make recommendations regarding the strength and loading of lake vessels. The letter and illustrations make clear the assistance which the captains and crews of lake vessels can give. All reports and information are to be mailed to the Freeboard Committee, 870 Kirby building, Cleveland.

possible, or failing this, the height of the crest, taken at some station on the vessel where the corresponding height to the observer's eye can be measured, either above the load line or from the keel of the vessel.

In order to standardize, as much as possible, the taking of this data, we suggest the following system:

First:—*Length of Waves, Sketch A, Fig. 1.* With the vessel head to wind and under as low speed as practicable, two observers to be stationed on the upper deck, the forward observer (No. 1) to take a position abreast the crest of a large wave, and the after observer (No. 2) to place himself abreast the crest of the wave, as it passes his position, the position of the observers to be marked on deck and the distance between the two measured, or calculated by distance center to center of hatches. After a few trials, lengths of

some of the longest waves, *A*, could be obtained and recorded in the accompanying blank (Fig. 2), noting also the speed of the vessel at time of observation. From these a mean, or average, wave length could be taken for our purpose.

Wave Period.—The wave period, or time in seconds between successive crests of the waves, could be taken by a third observer, on signals from the first and second observers, stationed abreast the wave crests, and recorded in the data blank (Fig. 2), together

for instead of sighting the wave horizontally, the observer will be inclined to sight the wave at an angle, or parallel to the inclined deck, which would show the wave to be of much greater height than actual.

To get the true height of the wave, the observer should take a position on the ship at such height that he can sight the top of the largest wave, alongside, with the horizon line, or with the top of another wave close to the first one, when the vessel is practically on an even keel. The height from

can be used or a portable gage might be constructed for the purpose. If made with a horizontal arm attached to the gage arm or pendulum, this arm could be used as a sight or level (see sketch *D*, Fig. 1).

The height of waves might also be observed as they pass along the side of another vessel, close by.

The storm waves on Lake Superior being longer and higher than on the other lakes, data on these are particularly requested, but data on the middle ground in Lake Huron, and on other lakes, are also desired and will be appreciated.

This system is suggested as a means of obtaining the desired information, and though it may seem somewhat crude, we believe that the mean of a number of carefully taken observations will supply us with data of sufficient accuracy for our purpose. The committee will appreciate any suggestions from masters as to other and better systems of procedure.

In making the observations, care should be taken by all of the crew not to endanger themselves, in any way, in order to get the information. It is requested that masters will supply, on the general data sheet, any particular information regarding the freeboard, stability and general seaworthiness of vessels, under various conditions of loading and ballasting, which may have come under their observation, and which they believe would be of value to the committee in carrying out its work.

It is planned by the Great Lakes committee, after the close of navigation this season and before working up the data sent in, to hold several conferences to discuss fully the subject of freeboard for lake vessels. A number of the masters will be invited to attend these meetings, along with the owners.

We trust that we may have the co-operation of the masters and crews of vessels in procuring this information. While it may take some little time, patience and ingenuity, it is of such importance to the work of the freeboard committee, we feel confident that, in supplying us with the data, they will appreciate having contributed to so important a work, and feel amply repaid for their efforts.

Yours truly,
Great Lakes Subcommittee,
H. C. SADLER,
H. N. HERRIMAN.

A distinct improvement in the entrance channel of the Columbia river is noted in this year's report of Col. J. H. Slatery. The government officials report a minimum depth of 40 feet and a width of nearly 4500 feet.

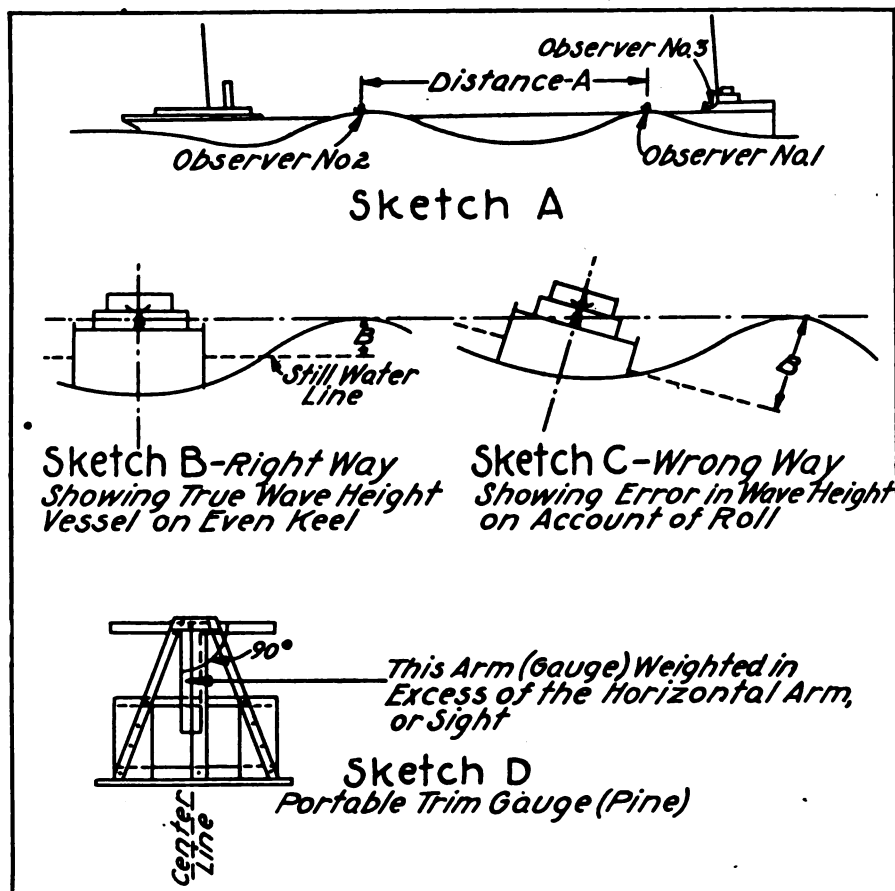


FIG. 1—CORRECT METHOD OF FINDING SIZES OF WAVES

with the speed of the vessel at time of observation.

Second:—Height of Waves, Sketches B and C, Fig. 1. The height of a wave from trough to crest is usually obtained, on salt water, by sighting the crest, with the vessel in the trough, and at a moment when she is on an even keel.

Owing to the nature of the cargoes carried in lake vessels, it might be impracticable to place the vessel in the trough, but if, with the vessel head to wind, the height of the crest can be observed, it will be sufficient for our purpose.

On the accompanying sketch *C*, Fig. 1, we have endeavored to illustrate how an error can be made in sighting the wave with the deck inclined, on a roll.

water line, or from keel of vessel, to the observer's eye will be the height of the wave, above the same point. The position of the observer should be marked, so that height from this point to water line can be measured, in still water, and recorded in the blank B, Fig. 2, this being taken as the height of the wave. The observer might be hoisted in a bo's'n's chair, to proper height, and distance from eye to deck measured.

In order to take the observation when the vessel is on an even keel, a trim gage of some sort should be used, with a hand stationed at the gage to notify the observer when the vessel is on an even keel, for taking the observation of wave height (see sketch *B*, Fig. 1). The vessel's ordinary trim gage

Boost Coastwise Rates

Increased rates, both passenger and freight, varying from 20 to 40 per cent have been granted and put into effect on the American coastwise steamship lines. These rate increases will, it is believed by traffic experts, once more restore American coastwise shipping to its old prominence and better the transportation situation of the country. Coastwise lines have been in a sorry plight ever since the war because they were restricted by the control over rates by the inter-

which are independent of railroad ownership.

The interstate commerce commission decreed:

"There have been filed in this proceeding applications for increased rates by a number of boat lines. The record shows that the expenses of the boat lines have increased in general at least in the same proportion as expenses of the railroads. Authority is, thereby, granted to boat lines subject to our jurisdiction to increase their rates to the same extent as in-

that in filing the increased rates here authorized a provision of this character should be made."

Some exceptions were made to the general rate increases. For instance the ore rates in the lakes district remain as formerly. A modification of the flat advance was made to stimulate the lake-and-rail movement of grain. This modification permits increases of only 30 per cent in domestic rates and 25 per cent in export rates instead of the flat 40 per cent increase authorized generally in the eastern

UNITED STATES GOVERNMENT COMMITTEE ON BULKHEADS AND FREEBOARD <u>SCHEDULE A. (SEE SKETCH A)</u> OBSERVATION OF WAVE LENGTHS					UNITED STATES GOVERNMENT COMMITTEE ON BULKHEADS AND FREEBOARD <u>SCHEDULE B. (SEE SKETCH B)</u> OBSERVATION OF WAVE HEIGHTS			
Name of vessel	Owners				Name of vessel	Owners		
Master	Date				Master	Date		
Officer in charge of observ'n.	Lake				Officer in charge of observ'n.	Lake		
Position of vessel	Course of vessel				Position of vessel	Course of vessel		
Direction of wind	Velocity of wind				Direction of wind	Velocity of wind		
Direction of sea	Depth of water, approx.				Direction of sea	Depth of water, approx.		
Duration of storm	Barometer reading				Duration of storm	Barometer reading		
Draft forward	Aft	Mean			Draft forward	Aft	Mean	
Load trim, - Nature of cargo	Tons				Load trim, - Nature of cargo	Tons		
Stowed in holds					Stowed in holds			
Ballast trim, - Water in peaks	Double Bottom				Ballast trim, - Water in peaks	Double Bottom		
Side Tanks	Holds				Side Tanks	Holds		
Wave No.	Length "A"	Period in seconds	Speed of vessel	Remarks	Wave No.	Height "B"	Location of Observer (fore and aft)	Remarks
1					1			
2					2			
3					3			
4					4			
5					5			
6					6			
7					7			
8					8			
9					9			
10					10			
11					11			
12					12			

NOTE: Height "B" of wave equals height of Observer's eye above still waterline.

FIG. 2—REPORTS TO BE FILLED IN BY LAKE MASTERS AND SENT TO FREEBOARD COMMITTEE

state commerce commission and the shipping board. The higher cost of steamship tonnage, the greater labor wages and the increased expense of fuel were putting them gradually out of business. The hard times forced the dissolution of the Old Dominion Steamship line and the cessation of other services which had become household names along the coast.

Coastwise water rates are largely controlled by the rail rates, and when the interstate commerce commission agreed to grant the railroads an advance in rates last August, it was also agreed to permit similar advances via the boat lines owned by the railroads. Supplementing this, the shipping board issued a decision granting similar increases to the coastwise boat lines

creases are herein granted to railroads operating between the same points or in the same territory. In the construction of rail-and-lake rates the present parity between Chicago and Duluth should be maintained."

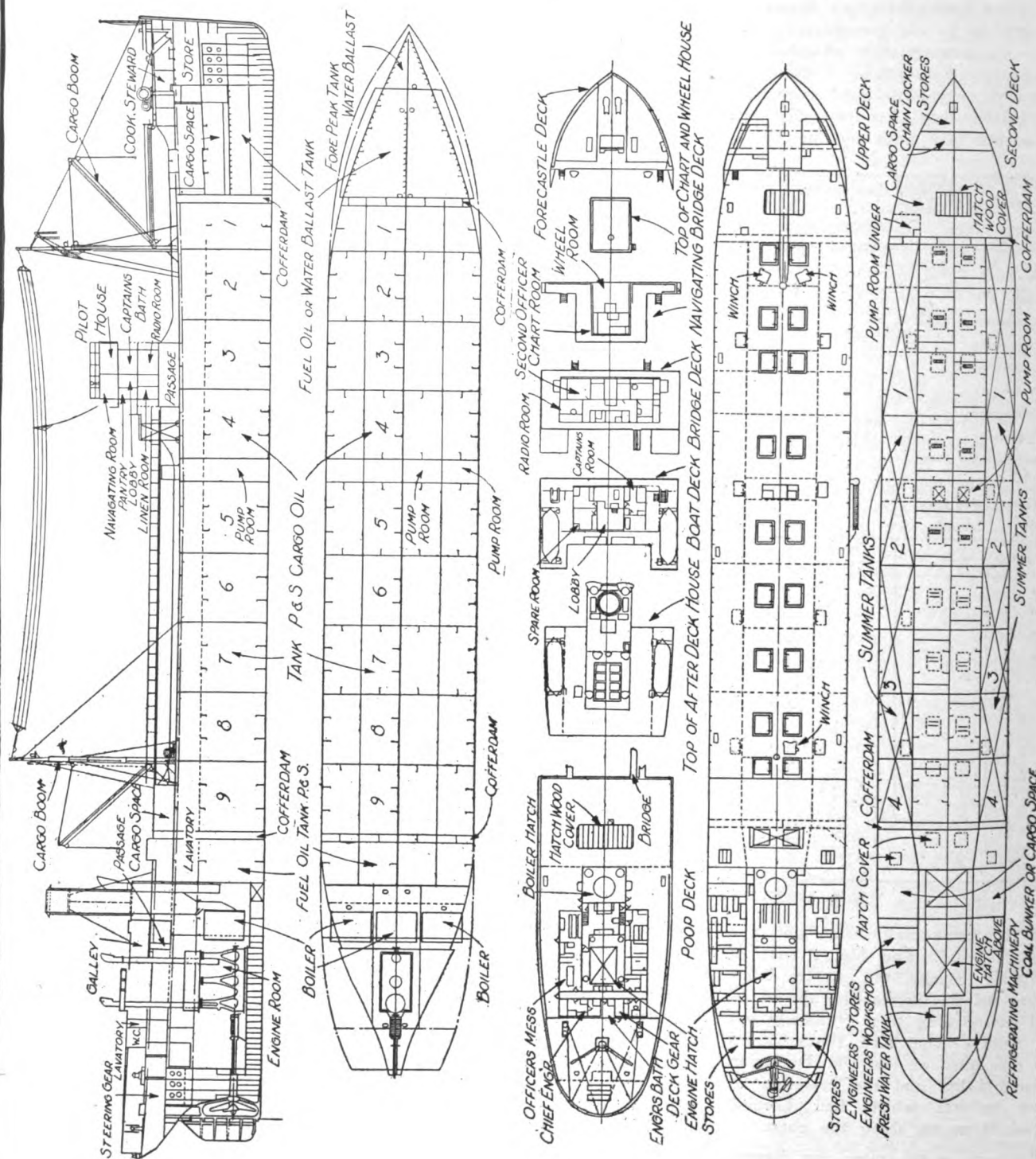
The commission further held:

"The eastern carriers express of record their willingness to preserve existing relationships between the rates to and from eastern ports. No objection to this proposal was made. This result can be readily accomplished for the reason that all rates in official classification territory between the ports and points west of the Buffalo-Pittsburgh line are based on the New York-Chicago rates. The base rates may be increased and existing differentials maintained. It is our view

territory. The new grain rates apply on shipments from Buffalo, Erie, Pa., and Fairport, O., to the Atlantic seaboard. As a result of this modification, lake-and-rail rates from the west will be about 3 cents per 100 pounds less than the all-rail rates.

The shipping board granted similar increases to the independent coastwise boat lines. The advances as effected are as follows:

	Freight Passenger —Per cent—	
Between Norfolk, Va., and ports on the Atlantic coast north thereof.....	40	20
Between Norfolk and New Orleans....	25	20
Between New Orleans and the Mexican border	35	20
Between ports on the Great Lakes....	40	20
Between New York and the canal zone	10	33½
Between New York and the Virgin Islands .....	..	33½
Between New York and Porto Rico....	20	20



OUTBOARD PROFILE AND DECK PLANS OF 10,000-TON TANKER

Details of 10,000-Ton Tankers

Refinements in Design Shown in New Oil Carriers—How Rapid Delivery Is Secured

TANKERS are a large part of the private ship tonnage under contract in American shipbuilding plants. The great demand for oil and the scarcity of ships to transport it is the cause of this activity. American oil companies are in a race with English and Dutch interests to maintain supremacy and, therefore, it is imperative for them to possess as soon as possible an adequate fleet. Shipbuilders on this side of the Atlantic are in a much better position to make speedy deliveries, giving Americans a favorable position over foreign interests in the oil field before the race begins. Both Atlantic and Pacific coast shipyards have been successful in obtaining tanker contracts.

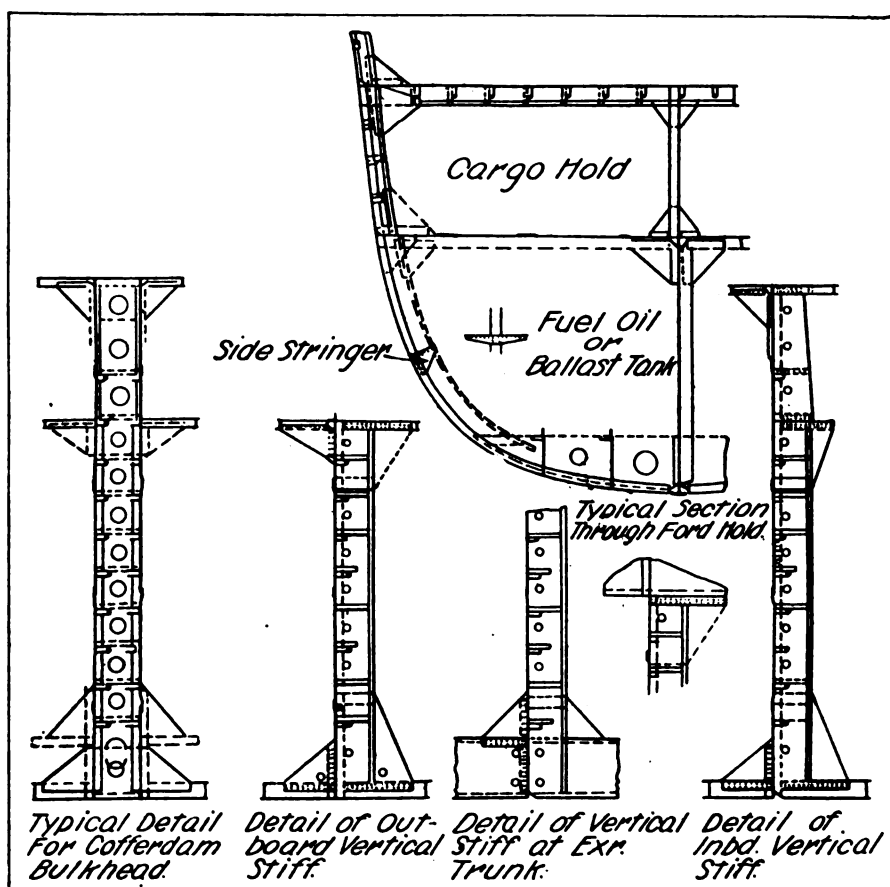
The significant feature of these tanker contracts is found in the designs. Owing to the standardization program put in vogue in the shipyards during the war, all the yards of any importance have designs of one or more tankers which are accepted as stock. An oil company desiring a new tanker can accept these designs, make such few changes as it thinks absolutely necessary, and order the work of building to proceed. Thus months of preliminary work may be eliminated, and the cost of the ship decreased. Among important contracts let recently was that by the Union Oil Co., of Delaware, to the Merchant Shipbuilding Corp., Harriman, Pa., for two 10,000 deadweight ton tankers to be built on the Isherwood system, of 10½ knots speed. The same shipbuilder also secured contracts to build two similar tankers for the Cochrane - Harper interests of Boston. The Merchant company's 10,000-ton type are single-screw bulk oil

carriers with a full load displacement of about 14,360 tons and a full load draft forward of 25 feet 5 inches. They have three Scotch boilers and triple-expansion engines. Their fuel capacity is 1350 tons of oil, burning about 36.5 tons of oil per day, giving them a steaming radius of 9300 nautical miles. This tanker is 439 feet 7 inches over all and 424 feet between perpendiculars. The molded beam is 58 feet, with a depth at the side to the upper deck of 33 feet. The cargo capacity of the main tanks, including the expansion tanks, is about 380,000 cubic feet, and the cargo capacity of the summer tanks is about 55,000 cubic feet. The drinking water tanks have a capacity of 29 tons and the reserve feed water tanks a capacity of 200 tons. An interesting feature of these tankers is that they have a capacity of about 30,000 cubic feet in the package freight holds.

The tanker has two complete steel decks, and poop, bridge and fore-castle. The machinery is placed aft. There are nine main tanks and four summer tanks for cargo oil, with

fuel oil in the after tanks and forward deep tank. The reserve feed is carried under the engine and boiler rooms. Water ballast is in the peaks. Package freight can be carried in the poop and forward hold. The after cargo oil tanks are separated by a cofferdam from a deep fuel oil tank, and the forward cargo oil tank is separated by a cofferdam from a package freight hold with a deep tank under, fitted for fuel oil or water ballast. The main pump room is located between No. 4 and No. 5 main tanks. A small pump room is located forward of the forward cofferdam.

The vessel is fitted with a long poop, short bridge and fore-castle, arranged for crew accommodation, stores, etc. The officers are quartered in a steel house on the bridge deck, the captain in a steel house on the boat deck, with a wooden wheelhouse and chartroom over. Two steel pole masts with wooden topmasts are fitted for carrying lights, signals and radio antennae. On the forward side of the foremast are fitted two 5-ton wood cargo booms, each 45 feet long. On the after side of the main mast is a single wood 5-ton boom, 47 feet long. The vessel has an electric lighting plant, steam steering gear, steam spur geared windlass, steam capstan, steam winches and one 2-ton refrigerating machine. The stem is a rolled steel bar, without rabbet, fitted in two lengths with scarf just above the light waterline. The forward keel plate is shaped to warp around the stem. The stern frame is cast steel in two pieces, with scarf at the upper part of the rudder post and lower part of the propeller post. No



CONSTRUCTION DETAILS OF 10,000-TON TANKER

rudder stops are cast on the post, but built-up chocks are provided for these at the tiller. The stern frame extends for three frame spaces forward of the propeller post at the keel tapering to a thickness of 2 inches at the forward end. The rudder is a single plate with forged post, having forged arms opposite each pintle shrunk on and keyed to the main piece. The rudder stock is forged steel, the upper and lower stocks connected by vertical coupling with key and fitted bolts. The

continuous expansion tank is fitted between the second and upper decks, over all the main oil tanks. The trunk bulkheads extend through the after oil bunkers. Bilge keels extend about 160 feet amidships, port and starboard. The two fresh water tanks, of a total capacity of about 7700 gallons, are located on the upper deck aft of the engine hatch.

Stockless anchors are fitted. A vertical ladder is provided to each main oil tank, the summer tanks, and

partments, the meat room with a capacity of about 550 cubic feet, and the provision room with capacity of about 340 cubic feet.

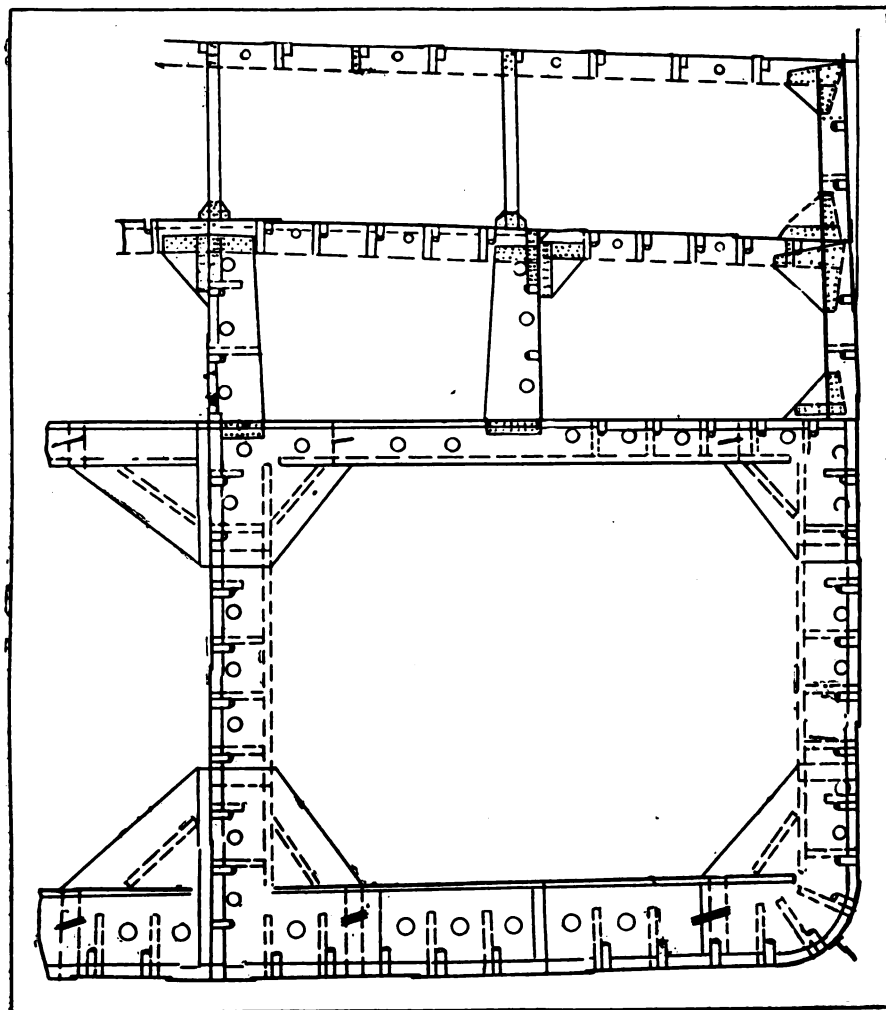
Engines Are Reciprocating Type

The engine is of the vertical inverted, triple expansion type, surface condensing, with three cranks at angles of 120 degrees. The cylinders are of the following sizes: Twenty-seven inches, high pressure, 45 inches, intermediate pressure, and 75 inches, low pressure, with 51-inch stroke of piston. The engine makes 75 revolutions per minute and has an indicated horsepower of 2700. The main condenser has a total cooling surface of 4000 square feet. The circulating pump is of the centrifugal double suction type of 5500 gallons per minute capacity.

The propeller shaft is 15½-inch diameter with a coupling forged on the forward end, and the aft end tapered, 1 inch per foot for the propeller and threaded for a nut. The propeller is of the built-up type, right hand screw, four blades. The blades are manganese bronze, fitted on a cast iron hub.

The fuel oil transfer and the forward ballast pumps are of the horizontal duplex double acting type. Two fuel oil service pumps of the same type are provided. The nine burners are of the mechanical atomizer type and have a total maximum capacity of 3700 pounds of fuel oil per hour. The three Scotch boilers have an internal diameter of 15 feet 3 inches each with a measurement of 11 feet 6 inches over the heads. The boilers are constructed for 200 pounds working pressure, 300 pounds test pressure, with a total heating surface of 2750 square feet to each boiler. A vertical donkey boiler is fitted in the fireroom with 2-inch steam connections led through a nonreturn valve to the auxiliary steam line. The smokebox is fitted for heated forced draft. The fan of the forced draft blower has a capacity of 22,000 cubic feet of air per minute at 100 degrees Fahr. The two feed pumps are of the vertical simplex, double-acting type, 12 x 8 x 24.

A steam smothering system is fitted to all cargo oil tanks, the fuel oil tanks, lamp locker and paint room. The evaporator is of the submerged tube type with a capacity of 30 tons of water evaporated per 24 hours, with steam supply at 100 pounds gage pressure to coils and atmospheric pressure in the shell. The fresh water distiller has a capacity of 2000 gallons per 24 hours, with circulating water to 80 degrees. For handling cargo oil, two horizontal duplex pumps, 16 x 13 x 24, are located one in each pump room. These pumps are



MIDSHIP SECTION OF TANKER

rudder is arranged to ship and unship afloat, without disturbing the upper stock.

Has Large Double Bottom

The vertical keel is continuous throughout from peak to peak bulkheads. An oil tight center line bulkhead extends from the top of the vertical keel to the top of the tanks throughout the length of the cargo and fuel oil tanks. The double bottoms extend from after peak to forward boiler room bulkhead, and straight out to the sides of the ship without margin plate. There are two manholes to each compartment. A

the fuel and peak tanks. Docking plugs are fitted in the bottom shell plating to each tank compartment. Hinged watertight metal doors, 24 x 60 feet, are fitted to the pump room entrance, to after bridge bulkhead, to refrigerating machinery compartment and to the rooms in the fore-castle. Nonwatertight metal doors of the same size are fitted in the engine and boiler casing and screen bulkhead. Metal skylights and metal hatch covers are used.

A cold storage room is built on the upper deck, aft of the engine hatch. It is divided into two com-

built especially for handling heavy oil.

The steam steering gear is of the steam tiller type and has a rack secured to the deck and double engines mounted on the tiller. The engines drive through a worm gearing to a pinion which engages the rack through a friction clutch. The engines operate on 100 pounds steam pressure and 5 pounds back pressure. The control is by a hydraulic telemotor with a controlling wheel and stand in the pilot house and steering engine room aft. A separate quadrant is fitted on the rudder stock with a rack on the outer edge, for hand gear. The hand wheel operates the quadrant through a worm, worm wheel, clutch, and pinion similar to the steam gear. The steam gear is capable of throwing the rudder hard over through 38 degrees at full speed. The hand gear performs the same duty with four men at the wheel at two-thirds speed.

Ask U. S. To Take Over Industrial Canal

The board of commissioners of the port of New Orleans is preparing to present to the federal government at Washington a request that the government take over the industrial canal and inner harbor, which was started three years ago at an estimated cost of \$4,000,000 and is now being completed at an actual cost of \$20,000,000.

The board of port commissioners, better known as the dock board, will ask the government—according to official announcement by the board—first, to pay the cost of the large concrete locks at the river end of the canal; second, to take over the maintenance of the canal itself, when it attains a navigable depth, paying the cost of such maintenance; and, third, to pay for the cost of the right-of-way of the canal.

This canal crosses the city of New Orleans, below the business district, connecting the Mississippi river with Lake Pontchartrain. Depth of water over the lock sills is calculated to be 32 feet, but in the canal it will be only about 14 feet. If and when a channel some 30 miles long, is dredged through Lake Pontchartrain, the canal will offer a waterway to the gulf about 40 miles shorter than the present Mississippi river course. Until this channel is dredged, the canal will offer a short and easy passage way for small power and steam boats, luggers and schooners, between the lake and the river, cutting out the 50-mile round-about trip through the Lake Borgne canal and locks, at present necessary to get from the lake to the river, or

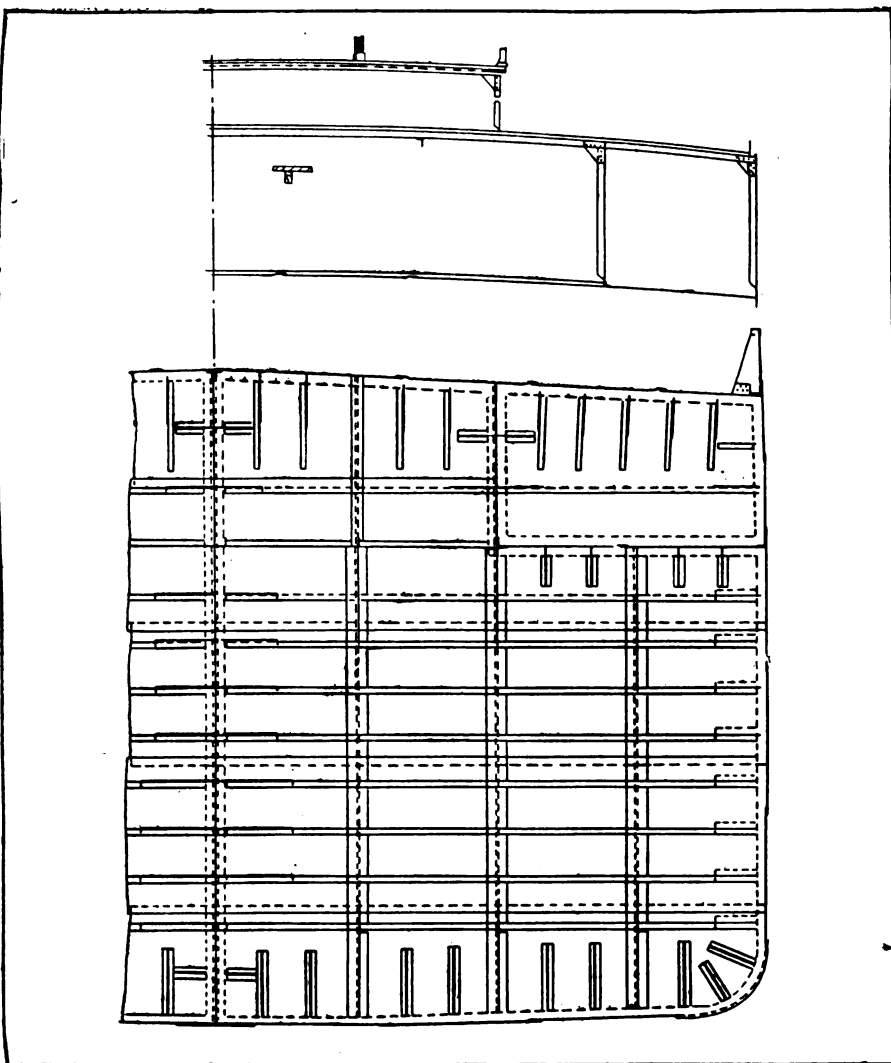
vice versa. It also offers an inner harbor, six miles long, with 12 miles of space for industrial plants, warehouses, etc. The cost of the locks is about \$6,000,000.

The argument put forward by the dock board for the taking over by the federal government is stated as follows:

"The canal, when it is completed, will be a navigable stream, open to all commerce and to all craft. Maintenance of navigable streams is a well-

canal, from Florida to the Rio Grande. The route of that canal lies through Lake Pontchartrain, from which a way providing adequate facilities for commerce must be found to the Mississippi river. If the inner harbor navigation canal were not to be used, then the government might find itself compelled to construct a similar canal from the lake to the river."

For precedent, the case of the canal between Lake Washington and Puget sound, at Seattle, is cited by the



DETAIL OF OILTIGHT BULKHEAD

established principle of federal government. Therefore, the government, in looking to the best interests of commerce, would be acting wisely in taking over the canal locks, maintaining the canal in a navigable condition, at all times, thus assuring commerce of a steady flow, and eliminating the obstacle of lock tolls, which will have to be charged if the state of Louisiana and the city of New Orleans, cobuilders of the canal, maintain and operate it.

"The government is now committed to the completion of the Intercoastal

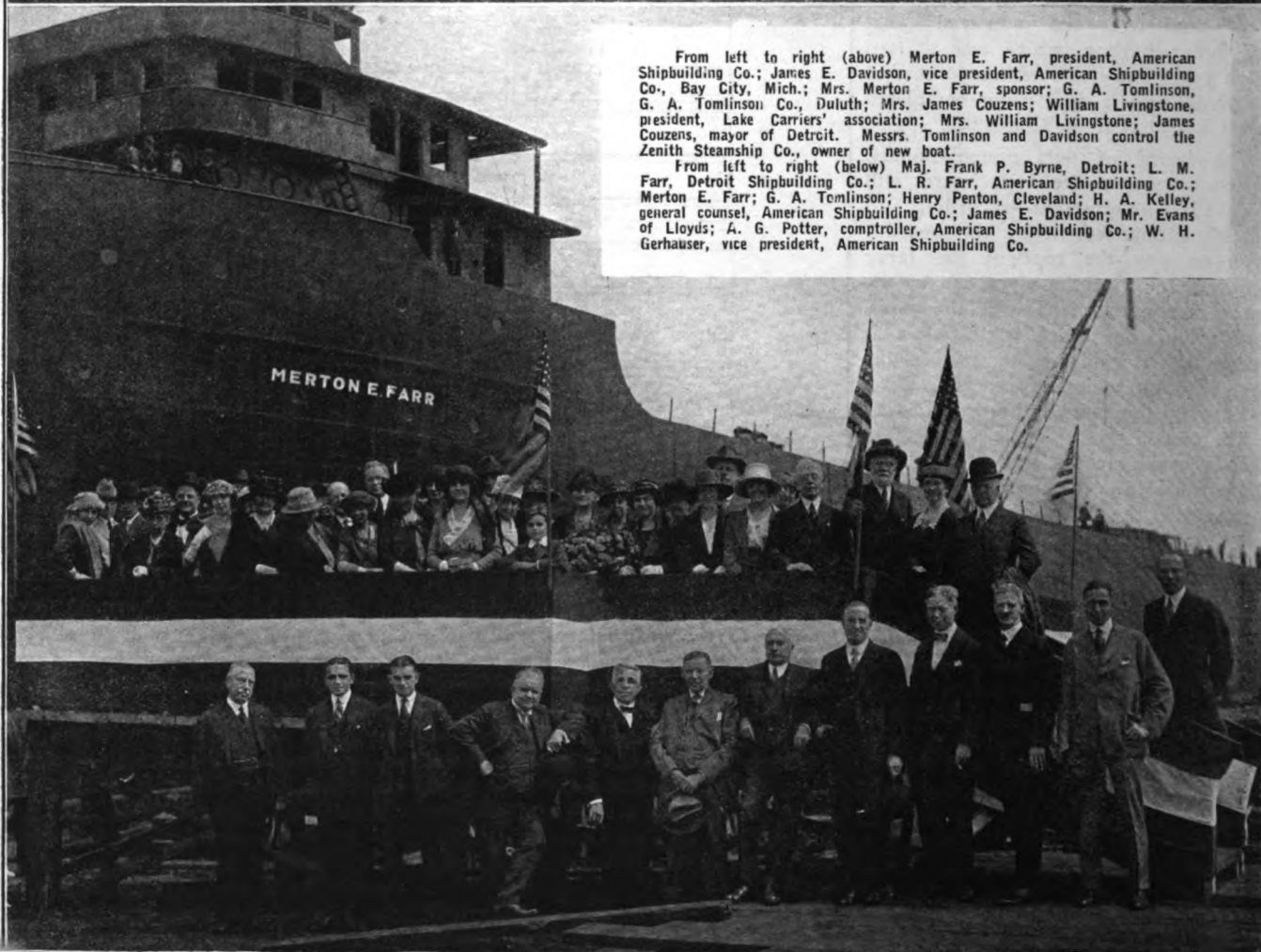
dock board. Lake Washington was an inland lake, until through local initiative, the state financed a canal joining it with Puget sound. The government then declared this canal a navigable stream, paid \$3,000,000 for the locks and paid for half the cost of constructing the canal, thereafter operating it as a federal waterway.

Louisiana's congressmen and part of the rivers and harbors committee of the national congress, have declared themselves in favor of the project for the sale of the New Orleans canal to the government.



From left to right (above) Merton E. Farr, president, American Shipbuilding Co.; James E. Davidson, vice president, American Shipbuilding Co., Bay City, Mich.; Mrs. Merton E. Farr, sponsor; G. A. Tomlinson, G. A. Tomlinson Co., Duluth; Mrs. James Couzens; William Livingstone, president, Lake Carriers' association; Mrs. William Livingstone; James Couzens, mayor of Detroit. Messrs. Tomlinson and Davidson control the Zenith Steamship Co., owner of new boat.

From left to right (below) Maj. Frank P. Byrne, Detroit; L. M. Farr, Detroit Shipbuilding Co.; L. R. Farr, American Shipbuilding Co.; Merton E. Farr; G. A. Tomlinson; Henry Penton, Cleveland; H. A. Kelley, general counsel, American Shipbuilding Co.; James E. Davidson; Mr. Evans of Lloyds; A. G. Potter, comptroller, American Shipbuilding Co.; W. H. Gerhauser, vice president, American Shipbuilding Co.



Big Boat Honors Lake Ship Builder

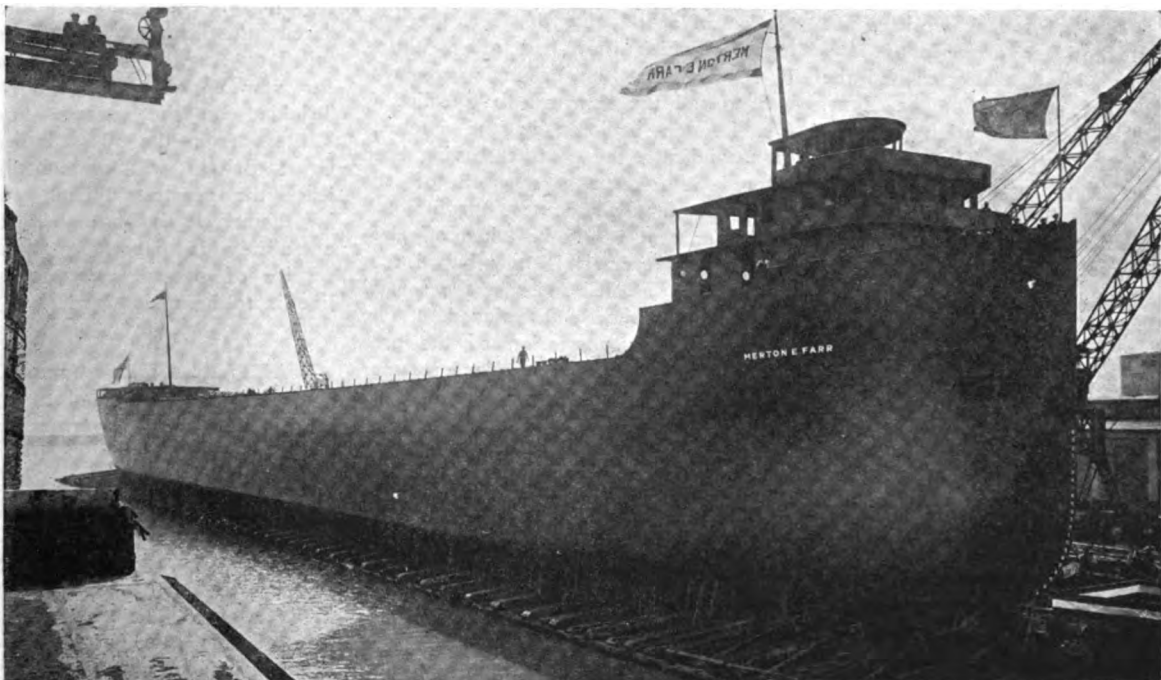
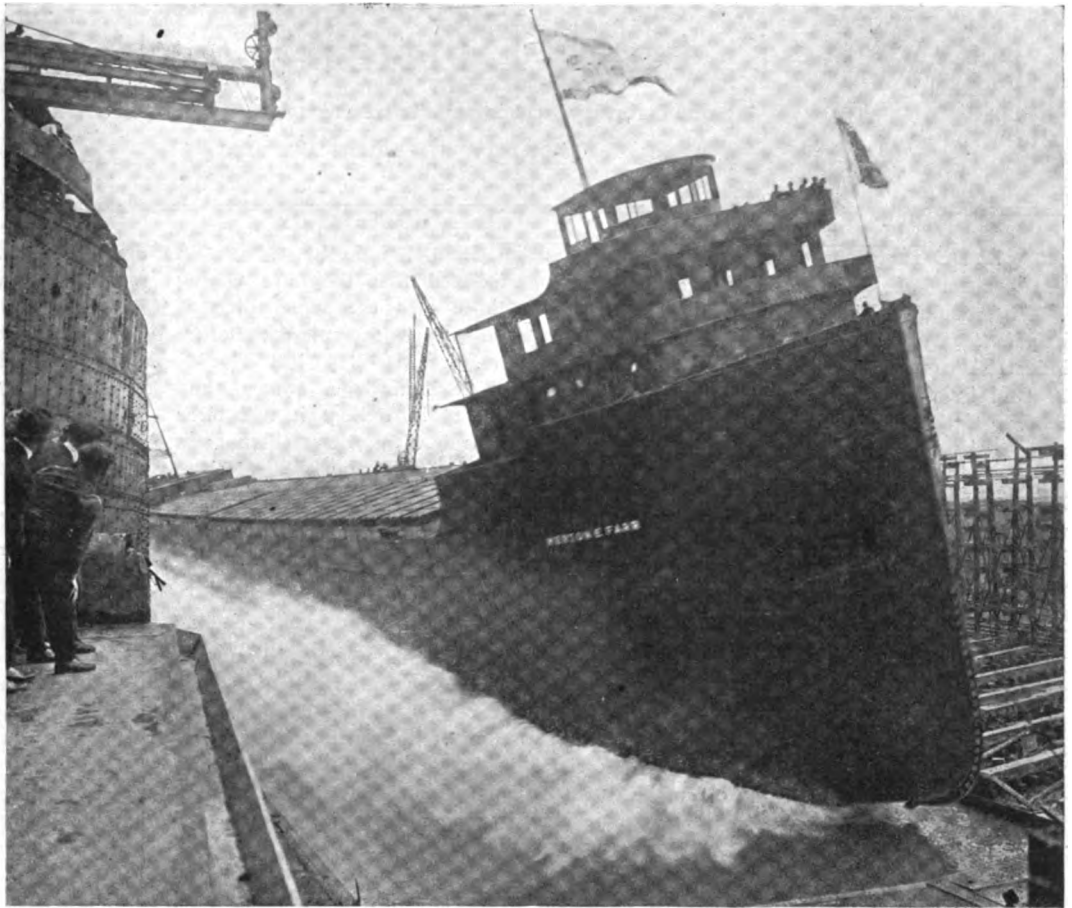
NAMED in honor of the president of the largest lake shipbuilding company, the bulk freighter,

MERTON E. FARR, was launched at the Wyandotte yard of the Detroit Shipbuilding Co., Detroit, Sept. 11. Mr. Farr is president of the American Shipbuilding Co., the Detroit yard being operated by the subsidiary firm. Mrs. Farr was sponsor for the big freighter.

The new ore carrier is one of four

built by the shipbuilding company on its own account and with two sister ships, JAMES DAVIDSON and L. M. BOWERS, has been purchased by G. A. Tomlinson and James E. Davidson. The fourth steamer, H. H. PORTER, has just been sold to the Brier Hill Steamship Co. These are the first large lake ves-

sels built for several years, as fresh water yards were given over entirely to the construction of oceangoing vessels during the war. The ships are 600 feet over all, 580 feet between perpendiculars, 60 feet beam and 32 feet depth. Their carrying capacity is about 13,000 tons. She will be completed this year.



What the British Are Doing

Short Surveys of Important Activities in Maritime Centers of Island Empire

CLYDE shipyards on the northeast coast of England are having trouble between platers and their helpers regarding the advance which the industrial court decided recently should be paid by the platers to their helpers. In two of the Clyde yards it is stated the platers have not complied with the court's decision and consequently about 700 helpers are on strike, affecting a number of other workers. Stevedores handling mine timbers at Cardiff and other South Wales ports are disputing their rates of pay for overtime work. Negotiations have for some time past been proceeding for a tariff based on the recent award of 16 shillings a day to dock workers. A provisional tariff gave the men about 20 per cent increase. The employers, however, refuse to put this new tariff into operation until the overtime and night shift rates are arranged. Liberal offers by the employers have so far been rejected, the men desiring to make individual bargains for the overtime. In the meantime about 24 ships are held up with mine-timber cargoes. General cargo workers at Swansea, South Wales, are demanding 21 shillings instead of the recent award of 16 shillings a day. About 1500 men are affected and the general cargo trade of this port is at a standstill. At the end of July, business at Middlesborough docks was held up owing to a wage claim by a section of dock workers not being granted. After a week of idleness a compromise was affected and the men returned to work. On the Tyne, there has been less dislocation of trade owing to labor friction. The stagnation indicated by the idle tonnage at the buoys is charged to the refusal by the coal controller to release more coal for export. Tyne steamship owners and coal exporters on the one hand and the coal controller on the other, hold conflicting opinions, owners and exporters stating that there is already a surplus of coal over what is needed for home consumption.

* * *

OIL is being poured on the troubled waters of Irish labor in the shipyards by the men themselves. John Holmes, of the Boilermakers' society and leader of the Ulster Unionist Labor association, has stated that the loyalists are ready to offer the hand of fellowship to all who are prepared to swear their allegiance to law and order, sym-

bolized in Great Britain by George V. He has declared that they are willing to show those men the same spirit as they had displayed toward each other in Flanders. This step has already been taken in Bambridge, Ireland, and if it is adopted in Belfast it will clear the air decidedly. Workers there seem to be determined that Sinn Feiners from the south and west shall not get back their jobs. Since the recent expulsion of Sinn Feiners from Belfast shipyards, 500 loyalists, mostly ex-service men, have been taken on in their places. At a recent meeting of employees of one of the large shipbuilding works, it was decided that committees representing each department of the works shall request the directors of the firm to give preference in future to loyalists ex-service men when seeking labor. It has been decided by the British government, as a temporary measure, to request transatlantic passenger vessels to omit the Queenstown call. As soon as conditions have become quieter this call will be resumed.

* * *

THE difficulties connected with the recent sale of the government's shipyard at Chepstow, England, have now been satisfactorily adjusted with the purchasers, who have withdrawn their demand for a cancellation of the contract and have intimated their intention of abandoning the legal proceedings of which they had given notice. It is said that the original agreement was to sell the shipyard to Sperling & Co., London bankers, in the interests of a syndicate, the contract having been entered into on the strength of the statement that the excess profits tax of 60 per cent would be taken off altogether. However, it is now hoped that the matter is settled and that the formal contract will shortly be signed. The purchasers took possession of the property last March. The standard steamer WAR FIG has just been launched from this yard, this being the fifth launch since the purchase of the shipyard last March. The length of the WAR FIG is 303 feet with a depth of 20 feet and a gross tonnage of 4000.

* * *

IT IS reported that Harland & Wolff, Belfast, Ireland, have decided to erect repair shops at various London docks and it is stated they are negotiating with the Port of London authority for

the whole of the latter's engineering repairs for a long period. This firm also has yards on the Clyde and engineering and repairing facilities at Southampton and Liverpool. Altogether they employ about 50,000 men. Hawthorne & Co., Ltd., Leith, Scotland, have recently added two building berths to their shipyard. The works have been modernized and re-equipped with up-to-date machinery and the scheme of reconstruction and extensions has resulted in a shipyard that is today one of the most modern in the United Kingdom. The British admiralty has issued orders for the construction of four additional oil tankers—one each at Portsmouth, Devonport, Pembroke and Sheerness navy yards. The cost of each is estimated at £120,000 (\$435,000). The order for the Portsmouth tanker is in addition to the one issued some months ago.

* * *

THE Royal Mail Steam Packet Co., has decided to discontinue its passenger service between the United Kingdom and the West Indies on account of the financial loss resulting from this service. Three months ago notice was given to the West Indian colonies that this step might be necessary. However, in spite of this, and to accommodate returning West Indian passengers, the Royal Mail Steam Packet line has ordered the steamer *QUILLOTA*, which sailed on Aug. 25 for Guayaquil to load for New York, to call at Barbados and Trinidad on the passage to Ecuador. Visitors from the West Indies now in Great Britain will undoubtedly experience the greatest difficulty in returning home. It is stated, however, that a subsidy is imperative if a regular service of passenger steamers on this line is to be maintained.

* * *

CAPTAIN Fryatt's famous ship, the *BRUSSELS*, presented to Great Britain by the Belgian government, has been sold by auction for £3100 (\$11,200) to T. B. Scott, Liverpool. The Belgian government made the request that a portion of the ship should be given to it for incorporation in a memorial to Captain Fryatt which is being erected at Zeebrugge. The sum realized by the sale of this ship is to be devoted to some charitable purpose connected with Captain Fryatt's name.

Practical Navigation Guide---VI

Determining Latitude by Ex-Meridian Observation— Explanation of the Sumner Line and How It Is Used

BY V. G. IDEN

IT MAY happen that clouds will interfere with the observation of the sun at the instant it reached meridian altitude. In this case, the sight would be ruined. A navigator, however, takes an ex-meridian altitude the moment the clouds have passed and if the interval of time is not great this can be conveniently worked out with the use of tables 26 and 27 in Bowditch. These tables give the variations up to an interval of 26 minutes. Observations taken at greater intervals than 26 minutes before or after the sun passes the meridian altitude are not sufficiently accurate for practical purposes.

First the Greenwich mean time as given by the chronometer is reduced to Greenwich apparent time; longitude in time is added to obtain the local apparent time. This will be a few minutes before or after noon, the ex-meridian time.

Then the observed altitude of the sun is reduced to the true altitude in the usual way and the declination is taken from the nautical almanac. With the latitude obtained by dead reckoning as the vertical argument and the declination of the sun as the horizontal argument, the variation in altitude is taken from Bowditch Table 26. This result is then taken as the vertical argument and the ex-meridian time as the horizontal argument to be applied to Bowditch Table 27, from which is taken the reduction to be applied to altitudes. This result added to the true altitude at the place of observation will give the true noon altitude, from which the zenith distance is taken. This zenith distance and the declination combined will be the latitude of the ship. But this resulting latitude is that of the ship at the instant of observation. To bring it up to noon the run must be applied. Take the

case of a ship which on July 12, 1919, was in latitude 50 degrees North and longitude 40 degrees West, by dead reckoning. The ex-meridian altitude of the sun was observed to be 61 degrees 48 minutes 30 seconds. The chronometer time was 2 hours, 41 minutes and 39 seconds. The chronometer correction was 2 minutes and 30 seconds minus. The indicated error was minus 3 minutes 0 seconds. The height of the eye was 15 feet. To find the exact latitude, study the example worked out in Table X.

Sumner Line

Navigators have found the plotting of position by means of the so-called Sumner line a great convenience. This method is named after its discoverer, Capt. Thomas E. Sumner, who first put it to use in 1837. In its essentials, it is a simple method of finding the position although there have been many variations of the principle for which different merits have been claimed.

The chronometer time is known but the latitude has been worked out by dead reckoning and is uncertain.

An observation of the sun is taken and two longitudes are worked out for the latitude nearest north and the latitude nearest south of that found by dead reckoning. These two positions are plotted on the chart and joined by a straight line. It is assumed that the ship is at some point on this line. These two positions have been found by using the same altitude and the same polar distance.

From this line the true course the ship is making is laid off. When the sun has changed its bearing a few points another observation is taken, and with the assumed latitudes, two more longitudes are figured out. These two points are also joined by a straight line. By laying out a third line parallel to the first in the direction of the course the ship has taken and the distance from it the ship has sailed in the interim, this third and second line may be made to intersect upon proper extension of each. Where they intersect is the position of the ship.

In Fig. 14, the first two positions plotted would be at *A* and *B* which have been joined by a straight line.

The second two positions would be *C* and *D* which have also been joined by a straight line. In the interim, the ship has sailed 50 miles due east. A third line is drawn parallel to *AB* 50 miles east and where this intersects *CD* at *P* is the position of the ship. One application of the Sumner method which seems to be quite popular because it necessitates the taking of but one observation is that where the azimuth angle is used. In this case the position is worked up with the latitude found by dead reckoning and from this position the line of the azimuth of the sun is plotted on the chart. A second line drawn at right angles to this through the position of the ship will be the Sumner line, upon some

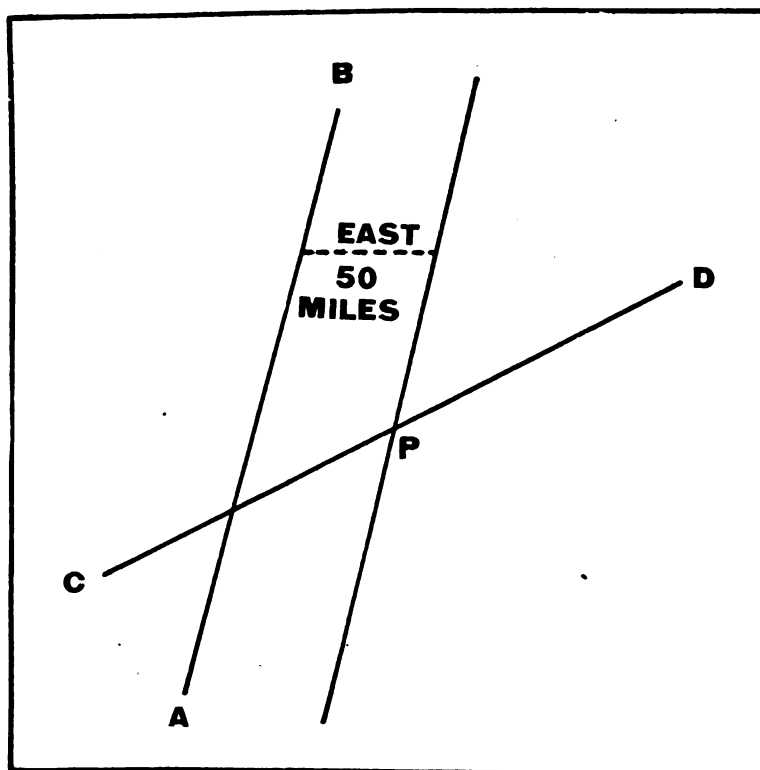


FIG. 14—DIAGRAMMATIC INSIGHT INTO SUMNER PRINCIPLE

point of which the ship will be. In Fig. 15, the position of the ship is found at *P* from which point the line of the azimuth of the sun is plotted as *PS*. The line *AB* drawn at right angles will be the Sumner line.

There are other variations of the Sumner principle which undoubtedly prove their worth in special circumstances, but in these days of wireless, submarine signals, careful surveys and crowded ocean lanes, it is doubtful whether they are as frequently put to use as is popularly supposed.

(To be continued.)

Ship Act to Stand

Senator Wesley L. Jones said in a recent conference at Tacoma, Wash., that Section 28 was proposed by the shipping board. He assured his audience that he is certain the bill is the most constructive piece of legislation ever passed for upbuilding the American merchant marine and added that he is ready to stand on it as it is. Until actual experience demonstrates to congress that any part of it is injurious to American interests, the speaker said it would not be amended or abridged. Senator Jones said he is certain the bill will eliminate much of the discrimination and unfair methods practised against American ships in foreign ports.

Those who attended this conference passed a resolution asking the shipping board to give at least six months' notice in the event it is intended to enforce Section 28 so that importing and other interests may have oppor-

tunity to adjust themselves to its provisions. The majority of those who were present at this meeting were opposed to Section 28 on the grounds that it is held discriminatory against Pacific

ports only. No protest was raised against any other provision. Representatives of foreign lines did not participate in the discussion.

New Norwegian Line

The North & South Atlantic line, Bergen, Norway, which now operates a line of cargo and passenger steamers between Norway and New York, Rio de Janeiro, and Buenos Aires, returning via Hamburg, will open a line to the west coast of South America, via the Panama canal, to Peru and Chile, returning via the Panama canal and the gulf ports. The new line will start with two modern steamers of 10,800 tons deadweight. These vessels will take cargo from Scandinavia and the continent for Peruvian and Chilean ports, and from there bring back cargo to the gulf ports, Scandinavia, and the continent. The line expects to secure considerable cargo from the gulf ports for Scandinavia, compensating it for cargo brought from Peru and Chile to such ports.

The Export Transportation Co., Baltimore, recently reorganized, is operating shipping board service from Baltimore to Rotterdam and Liverpool. W. F. Taylor is president and R. H. Cooper, vice president.

Table X
Finding Latitude by Ex-Meridian Observation

Chronometer time	2h 41m 39s		
Chronometer correction	2m 30s		
Greenwich mean time	2h 39m 09s		
Equation of time	5m 26s—		
Greenwich apparent time	2h 33m 43s		
Longitude 40 degrees west in time	2h 40m 00sW		
Local apparent time	11h 53m 43sT		
	6m 17s ex-noon		
	Equation	5m 17.5s—	Hourly variation 0.330
		8.5	x2.6
		5m 26s	8.580 (increasing)
Observed latitude	61 deg. 48 min. 30 sec.		
Height of eye correction	11 min. 42 sec.		
	62 deg. 00 min. 12 sec.		
Indicated error	3 min. 00 sec.		
True altitude	61 deg. 57 min. 12 sec.		
Declination for July 12	22 deg. 05 min. 26 sec. N	Hourly variation	20.07
Correction	54 sec.		x2.6
	22 deg. 04 min. 32 sec. N		54.189 (decreasing)
With Latitude 50 degrees as the horizontal argument and Declination 22 degrees as the vertical argument, the variation in altitude taken from Bowditch Table 26 is 2.5 seconds.			
With ex-meridian time of 6 minutes as the horizontal argument and the variation of 2.5 seconds as the vertical argument, Bowditch Table 27 gives:			
		2.0 sec.—1 min. 12 sec.	
		0.5 sec.—0 min. 18 sec.	
		2.5 sec.—1 min. 30 sec. Reduction to be applied	
True altitude	61 deg. 57 min. 12 sec.		
Reduction	+ 1 min. 30 sec.		
True altitude	61 deg. 58 min. 42 sec. (ex-meridian)		
	90		
Zenith distance	28 deg. 01 min. 18 sec. N		
Declination	22 deg. 04 min. 32 sec. N		
	50 deg. 05 min. 50 sec. N	True Latitude of ship	

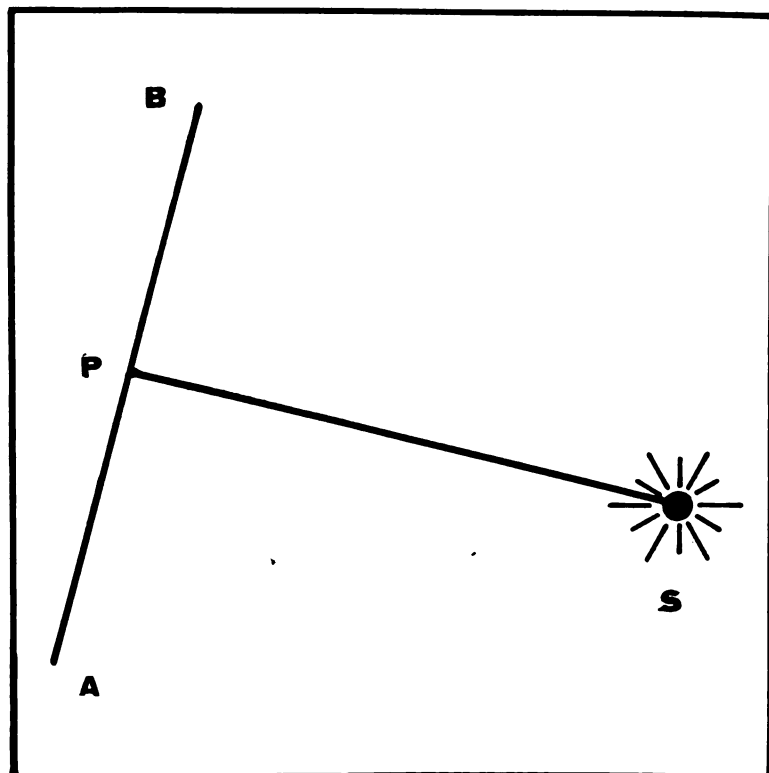


FIG. 15.—
ANOTHER
APPLICATION
OF
SUMNER
METHOD

Marine News in a Personal Way

Intimate Gossip About What Leaders in the
Maritime World Are Doing

PRESIDENT C. W. WILEY and J. A. EVES, vice president and general manager of the Tacoma branch of the Todd Shipyards Corp., personally conducted a party of the company officials on a recent inspection of the Todd Pacific plants. The trip was made to acquaint eastern executives of the corporation with the complete facilities for shipbuilding and repair work possessed by the Pacific plants of the company. The party made a three-day visit to Seattle and Tacoma, Wash. They came west in the private car of President W. H. Todd and at his suggestion. While west, they made a close inspection of the Todd Dry Docks, Inc., Harbor Island, Seattle, and of the plant of the Todd Dry Dock & Construction Corp., Tacoma. The visiting party included Mr. and Mrs. A. C. Deyo, Mr. and Mrs. George Dawe, Mr. and Mrs. Roy Lander and Col. W. B. Baker. Mr. Deyo and Mr. Dawe are the chief executives of the Robins Dry Dock & Repair Co., Erie Basin, Brooklyn, while Mr. Lander is an executive of the Tebo Yacht Basin Co., Brooklyn. Colonel Baker is at the New York offices. In the special car, the party returned east by way of San Francisco, Los Angeles and the southern route, accompanied by H. E. Coleman, comptroller and treasurer of the Tacoma company. The eastern executives were much interested in the Puget sound branches of the organization and gave high praise to their equipment and organizations.

* * *

SAMUEL T. OLDFIELD of the Eastern Steamship Lines, Inc., has been appointed assistant general passenger agent of the company with headquarters at India Wharf, Boston.

* * *

SAMUEL A. TIERNEY, recently resigned from the staff of the United Fruit Co. to become a freight contracting agent for the Tropical Steamship Corp., New York.

* * *

JOHN H. MCINTYRE has severed his connection with the traffic department of the Export Steamship Corp., New York, and has become affiliated with the Export Transportation Co., 90 West street, New York, in the capacity of contracting freight agent.

* * *

JOHN P. JAMES, formerly special assistant to Raymond B. Stevens, ship-

ping board commissioner, has been appointed assistant secretary of the Emergency Fleet corporation.

* * *

THOMAS DUNBAR, marine architect for the Howard shipyards, Jeffersonville, Ind., is now connected with the John Eichleay Jr. Co., Pittsburgh. He was identified with the Howard company for 15 years, which were spent principally in constructing river boats. During the war he was with Cox & Stevens, New York, and designed steel boats for the government.

* * *

ROBERT A. KRUG and JOHN J. SHARP have been elected as vice presidents of the Kerr Steamship Co. Inc., New York. Mr. Krug has been connected with the Kerr organization for five years, serving in various executive capacities. Prior to that time he was with Busk & Daniels, agents of the Lamport & Holt line. Mr. Sharp has been manager of the ownership department for several years and has had supervision of the operations of loading, discharging, etc., of all the company's steamers.

* * *

A. B. WAY, formerly secretary and general manager of the Bridgeport Chain Co., Bridgeport, Conn., is now district sales manager for the New England territory of the Chain Products Co., Cleveland, with headquarters at the company's New York office. During the war, Mr. Way was chairman of the board of weldless wire chain manufacturers, an organization created by the war industries board.

* * *

H. S. NOBLE has severed his connection with the United States government after two years' service as federal manager of the New York-New Jersey canal section, and has returned to the Great Lakes Transit Corp., Buffalo, in the capacity of vice president in charge of freight traffic.

* * *

A. J. FREY has accepted the position of general manager of the Los Angeles Steamship Co., San Pedro, Cal., following his resignation as Pacific coast district manager of the division of construction and repair of the Emergency Fleet corporation, Seattle. Mr. Frey has

been succeeded by WILLIAM CHISHOLM who has been assistant district manager in California. WALTER B. BEEBE remains as assistant manager in the Seattle district.

* * *

EDWARD MCCONALOGUE, northwest traffic manager for the General Steamship Co. has moved from Seattle to San Francisco to take the position of traffic manager succeeding R. S. Silva, resigned. Mr. McConalogue was formerly with the American-Hawaiian Steamship Co. The General Steamship Co. has just opened a branch at Portland, Oreg., with F. C. Devine in charge.

* * *

CAPT. GERARD T. JANUARY has been appointed master of the new shipping board passenger liner WENATCHEE, which is coming to the Pacific this fall to enter the Oriental trade under assignment to the Pacific Steamship Co. BENJAMIN S. PARKER has been named as chief engineer of the new liner. Both master and chief are in the east superintending the work of completing the WENATCHEE.

* * *

CAPT. JOHN GRIFFITH, after serving as pilot in the Panama canal zone for three years, has returned to the employ of the Pacific Steamship Co., having been appointed master of the steamer CURACAO, operating to Mexico and Central American ports.

* * *

JOHN J. GORMAN, who has been general agent in the Orient for the Pacific Steamship Co., the Admiral line, has been promoted to the position of general manager with jurisdiction over all the company's branch offices in the Far East. His headquarters are at Shanghai. R. W. BRUCE has been appointed agent at Shanghai.

* * *

E. L. MATTESON, formerly agent for the Pacific Steamship Co. at Vladivostok, has been transferred to Dairen, succeeding H. K. Laidlaw, resigned. HOWARTH LEWIS has been transferred from the Yokohama office to the agency at Vladivostok.

* * *

CARL SUNDE, a well known Seattle shipping man, has returned from an extended tour of Norway, his native land.

Marine Business Statistics Condensed

New York Traffic

ENTRANCES and clearances at New York showed another increase during August. This was due to the fact that more passenger liners are being put into service gradually and also more freight is being moved. Coupled with this has been noticed a slight increase in rates received by the steamship companies. It has been estimated that approximately one-fourth of the vessels leaving the port have been going out in ballast, which, while bad enough in itself, is an improvement over the conditions which have prevailed heretofore. The inward movement of both passenger and freight has been showing a greater improvement than the outward movement.

Many vessels have been moving to

NEW YORK PORT TRAFFIC 1920 (Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
January	372	1,143,126	410	1,450,778
February	377	1,174,913	829	1,054,269
March	440	1,322,013	410	1,369,829
April	431	1,302,177	386	1,243,000
May	444	1,343,052	390	1,258,996
June	508	1,545,144	438	1,364,297
July	510	1,627,721	462	*1,518,408
August	537	1,634,719	499	1,649,416

*Corrected.

Hampton Roads and to Philadelphia to bunker, where the prevailing price for coal has been slightly in excess of \$17 a ton. Good bunker coal has been costing that much in the port of New York, although it is understood that some has sold for as low as \$16. A lower grade of coal has been offered for bunker at \$13 to \$14 a ton alongside but the steamships apparently do not prefer this grade. Fuel oil, of from 15 to 17 gravity, for bunker has been costing 8.50 cents a gallon.

Philadelphia Traffic

August was a banner month for the port of Philadelphia, the entrances and clearances representing an increase of approximately 75 per cent over the month previous. This improvement was attributed to the improved traffic conditions which enabled a more expeditious movement of incoming and outgoing freight. The cessation of strikes and the increased freight rates both rail and coastwise contributed to this improvement. Port authorities hold that the coastwise movement has been increased and much of Philadelphia's overseas freight has been transported in this manner from and to domestic destination.

So important has ocean shipping become that the city authorities have joined with the Pennsylvania railroad in an appeal to the war department to improve the quartermasters' terminal built at Philadelphia for war purposes. This terminal has been turned over to

PHILADELPHIA PORT TRAFFIC 1920 (Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
January	59	139,941	67	199,396
February	67	184,753	72	230,766
March	91	223,082	65	171,724
April	88	205,694	89	237,730
May	129	316,246	126	315,997
June	106	251,070	75	181,875
July	92	226,935	86	253,357
August	134	351,144	145	403,517

*Corrected

commercial uses but the rail approaches and the warehouse facilities are inadequate.

Bunker costs at Philadelphia have showed a slow decline and deliveries are improving daily. Coal has sold from \$15 to \$20 a ton, although recently the price has been \$17.50. Fuel oil has been selling from 5 cents to 11 cents a gallon.

American ships constitute approximately 50 per cent of the number using the port, and only about one-fifth of these entered cleared in ballast during August. Nearly one-half of the foreign entrances were in ballast, whereas the foreign clearances in ballast were small.

New Shipping Firms

In August, 20 companies with an authorized capital of \$50,000 or greater were organized to engage in the shipping business. Their authorized capitalization was \$24,550,000. This compares with 18 companies and \$26,250,000 in July. The August figure is the smallest for any month this year as shown by the records of the *Journal of Commerce*, New York.

AUGUST, 1920

Brier Hill Steamship Co., Ohio	\$ 1,000,000
Electric Steel Building Corp., Del.	600,000
Globe Line, Inc., Del.	2,000,000
Jarka, F. Co., Inc., N. J. (shipping)	100,000
Kears Transportation Co., Mass.	150,000
Lyn-dy-Shea Oil Transportation Corp., Del.	600,000
Lone Star Oil Transport Co., Md.	500,000
Liberian American Steamship Co., Inc., Del.	500,000
Lysol, Inc., Del.	10,400,000
Northport Shipyard, Inc., N. Y.	100,000
North Atlantic Shipping & Agency Corp., N. J.	100,000
New York-Vistula Steamship Corp.	1,100,000
Pacific Packet Line, Wash.	1,200,000
Publicker Shipping Co., Del.	700,000
Service Line Corp., Del.	100,000
Slavia Transatlantic Corp., Del.	8,000,000
Seas Shipping Corp., Del.	100,000
Transo Steamship Corp., Del.	100,000
Trans-Shipping & Distributing Warehouse Corp., N. Y.	50,000
Winneton Shipping Co., Wash.	250,000
Total	\$24,550,000

Boston Traffic

Entrances and clearances of vessels engaged in the foreign trade at the port of Boston during July were as follows:

VESSELS ENTERING AND LEAVING BOSTON PORT DURING 1920

(Offshore Trade Only)
Foreign Registry

Months	ENTERED		CLEARED	
	No. Ships	Net Tonnage	No. Ships	Net Tonnage
January	26	66,829	17	54,203
February	23	68,344	8	19,227
March	24	86,755	15	39,079
April	38	111,719	21	43,726
May	31	60,204	28	34,472
June	58	109,204	44	49,906
July	62	113,337	56	53,820
August	85	122,019	59	55,394

American Registry

Months	ENTERED		CLEARED	
	No. Ships	Net Tonnage	No. Ships	Net Tonnage
January	27	74,297	23	49,203
February	23	55,878	16	36,296
March	36	84,031	21	48,438
April	46	68,777	47	74,498
May	54	64,468	53	52,944
June	62	88,932	44	74,688
July	49	98,617	31	70,879
August	48	113,687	24	69,249

August Ore Shipments

Shipments of iron ore from the Lake Superior district during August totaled 9,270,763 tons. Comparing the figures with those of August, 1919, when shipments were 4,416,200 tons, shows an increase of 4,854,563 tons. Total shipments to Sept. 1 are 35,349,874 tons. Compared with the figure for the corresponding period of last year, 29,598,048 tons, an increase of 5,751,826 tons is shown. Detailed shipments by ports are:

Port	Aug. 1920	To Sept. 1, 1920
Escanaba	1,277,561	4,394,839
Marquette	802,567	2,141,291
Ashland	1,327,294	4,933,402
Superior	2,266,497	8,961,424
Duluth	2,351,918	9,352,140
Two Harbors	1,444,926	5,566,779
Total	9,270,763	35,349,874
1920 increase	4,854,563	5,751,826

Lake Erie Receipts

Out of a total of 9,270,763 tons shipped from upper lake ports in July, Lake Erie ports received 7,127,592 tons, as shown by figures compiled by THE MARINE REVIEW. The balance on dock Sept. 1 was 8,554,455 tons against 6,705,062 tons on Sept 1, 1919. Detailed figures are:

Port	Gross tons
Buffalo and Port Colborne	1,346,553
Erie	389,056
Conneaut	877,943
Ashtabula	1,699,268
Fairport	181,460
Cleveland	1,208,773
Lorain	608,700
Huron	231,057
Toledo	431,281
Detroit	58,331
Total	7,127,592

Marine Business Statistics Condensed

Ship Work in U. S. Yards

SHIPS built in American yards and officially numbered by the bureau of navigation, department of commerce, during August, 1920, were 178 of 259,210 gross tons, of which 46 of 226,428 gross tons were steel steamers. The output by months during 1920 has been as follows:

Months	Steel		Seagoing-Wood		Total		Nonseagoing		Grand total	
	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons
January	45	231,221	15	17,597	60	248,818	55	4,862	115	253,680
February	58	230,967	16	21,031	74	251,998	66	15,233	140	267,231
March	82	259,552	9	10,602	71	270,154	199	9,555	170	279,709
April	47	225,395	7	11,311	54	236,706	110	14,736	164	251,442
May	30	151,780	17	19,104	47	170,884	137	14,261	184	185,145
June	145	231,686	9	19,813	54	251,499	144	15,577	198	267,076
July	34	185,731	6	10,908	40	196,639	133	20,600	173	217,239
August	46	224,310	6	8,518	52	232,828	126	26,582	178	259,210

*Includes 2 vessels of 13,652 gross tons built of concrete.

†Includes 4 vessels of 1224 gross tons built of concrete.

‡Includes 2 vessels of 12,972 gross tons built of concrete.

§Includes 1 vessel of 6144 gross tons built of concrete.

The output for 12-month periods ending with each month of the current year has been as follows:

Months	Steel		Seagoing-Wood		Total		Grand total, including nonseagoing	
	Number	Gross tons	Number	Gross tons	Number	Gross tons	Number	Gross tons
January	805	3,594,615	311	529,934	1,116	4,124,549	2,346	4,247,475
February	816	3,619,476	301	492,870	1,117	4,112,346	2,351	4,243,276
March	831	3,679,255	266	417,074	1,097	4,096,359	2,335	4,224,980
April	803	3,588,503	243	376,288	1,046	3,964,791	2,298	4,100,817
May	740	3,388,915	240	360,413	980	3,749,328	2,232	3,890,554
June	722	3,290,820	210	297,664	932	3,588,484	2,158	3,734,741
July	684	3,146,257	183	252,993	867	3,399,250	2,086	3,554,352
August	645	2,978,301	164	225,180	809	3,203,481	2,026	3,358,224

August Lake Levels

The United States lake survey reports the monthly mean stages of the Great Lakes for the month of August, 1920, as follows:

Lakes	Feet above mean sea level	
	July	August
Superior	602.94	602.93
Michigan-Huron	581.03	581.01
St. Clair	575.63	575.66
Erie	572.63	572.65
Ontario	245.70	245.62

Lake Superior is 0.01 foot lower than last month, 0.37 foot higher than a year ago, 0.35 foot above the average stage of August of the last 10 years, 1.00 foot below the high stage of August, 1876, and 1.33 feet above the low stage of August, 1879.

Lakes Michigan-Huron are 0.02 foot lower than last month, 0.13 foot lower than a year ago, 0.15 foot above the average stage of August of the last 10 years, 2.50 feet below the high stage of August, 1876, and 1.16 feet above the low stage of August, 1911. During the last 10 years the August level has averaged 0.1 foot lower than the July level, and 0.2 foot higher than the September level.

Lake Erie is 0.02 foot higher than last month, 0.49 foot lower than a year ago, exactly the same as the average stage of August of the last 10 years, 1.46 feet below the high

stage of August, 1876, and 1.27 feet above the low stage of August, 1895. During the last 10 years the August level has averaged 0.2 foot lower than the July level, and 0.2 foot higher than the September level.

Lake Ontario is 0.08 foot lower than last month, 1.71 feet lower than a year ago, 0.92 foot below the average

stage of August of the last 10 years, 2.64 feet below the high stage of

August, 1862, and 1.27 feet above the low stage of August, 1895. During the last 10 years the August level has averaged 0.3 foot lower than the July level, and 0.4 foot higher than the September level.

Lake Michigan Receipts

Receipts of ore at Lake Michigan ports for August were 1,772,490 gross tons, as shown in the following record by ports:

Port	Gross tons
South Chicago, Ill.	916,642
East Jordan, Mich.	.....
Bovne City, Mich.	.....
Milwaukee	29,028
Indiana Harbor, Ind.	170,927
Gary, Ind.	655,895
Total	1,772,490

The bureau of navigation announces that ships built in American yards and officially numbered during August were 178 of 259,210 gross tons, of which 46 of 226,428 gross tons were steel steamers.

Salaries of the masters of the shipping board steamers will remain at \$330 to \$412.50 a month for another year, according to the secretary of the Shipmasters' association of the United States.

Soo Canal Report

The total movement of freight through the Soo canal in August was 12,425,290 net tons, an increase of 847,611 net tons when compared with the total movement of 11,577,679 net tons in July. When compared with the shipments for August of last year which totaled 6,609,961 tons, an increase of 5,815,329 net tons is shown. The tonnage comparison figures for the past seven years follow:

	Net tons
August, 1920	12,425,290
August, 1919	6,609,961
August, 1918	12,739,801
August, 1917	13,967,109
August, 1916	14,031,262
August, 1915	10,540,791
August, 1914	8,934,986

Of the total freight carried in August, 9,278,071 tons were handled through the United States canal, while 3,147,219 tons passed through the Canadian canal.

The following tabulation gives the figures in detail for 1920 and 1919:

EASTBOUND		
	To Sept 1 1920	To Sept. 1 1919
Lumber, M. ft. B. M.	125,254	155,704
Flour, barrels	3,950,902	3,793,247
Wheat, bushels	39,099,711	56,106,325
Grain, bushels	26,439,256	32,626,065
Copper, net tons	27,718	27,286
Iron ore, net tons	33,573,707	29,407,053
Pig iron, net tons	212	3,548
Stone, net tons	39,825	31,802
Gen'l merch., net tons	34,474	43,815
Passengers, number	28,283	23,353
WESTBOUND		
Coal, soft, net tons	5,376,364	8,149,369
Coal, hard, net tons	1,124,860	1,148,176
Iron ore, net tons	73,083	46,983
Manufactured iron and steel net tons	48,313	85,118
Salt, net tons	60,901	57,089
Oil, net tons	207,658	236,319
Stone, net tons	295,647	73,394
Gen'l merch., net tons	302,163	257,806
Passengers, number	29,825	24,643

SUMMARY		
Vessel passages, number	11,007	11,300
Registered tonnage, net	33,318,627	31,434,716
Freight:		
Eastbound, net tons	36,120,218	32,630,084
Westbound, net tons	7,438,989	10,054,184
Total freight, net tons	43,609,207	42,985,018

Record Panama Traffic

During the fiscal year from July 1, 1919, to June 30, 1920, the volume of traffic passing through the Panama canal exceeded that in any previous 12-month period. A total of 2478 commercial ships made the transit, as compared with 2025 in the fiscal year ended June 30, 1919, 2130 in the fiscal year 1918, and 2134 in the calendar year 1919, according to the *Canal Record*.

The number of commercial ships passing through the canal in the fiscal year 1920 was about two-fifths above the average traffic for the period of canal operation. It was approximately one-sixth greater than the number of ships in the previous record year (1918) and

Marine Business Statistics Condensed

one-fifth greater than the number in the fiscal year 1919.

Of the 2478 commercial ships making the transit in the past fiscal year, 1180 were bound from the Atlantic to the Pacific and 1298 from the Pacific to the Atlantic.

The aggregate net tonnage of the commercial ships passing through the canal in the fiscal year 1920 was 8,545,653 tons, according to the Panama canal rules of measurement. Of this, 4,168,873 tons went from the Atlantic to the Pacific and 4,376,780 tons from the Pacific to the Atlantic. In the fiscal year 1919, the aggregate was 6,131,575 net tons.

The cargo carried through the canal by the commercial ships in the fiscal year 1920 totaled 9,374,499 long tons. Of these, 4,092,516 tons were bound from the Atlantic to the Pacific, and 5,281,983 tons from the Pacific to the Atlantic. The aggregate cargo in the preceding fiscal year, carried by commercial ships, was 6,877,649 tons.

In addition to the traffic of commercial ships, 266 vessels passed through the canal in the service of the United States government without the payment of tolls. These were practically all army and navy vessels. They carried 365,898 tons of cargo.

In revenues and in earnings in ex-

revenues was made in the fiscal year 1918, in an amount of \$6,411,843.28. In that year the excess of revenues over expenses amounted to \$491,500.34, being greater than that in any fiscal year prior to the fiscal year 1920.

In the fiscal year 1919 revenues amounted to \$6,354,016.98, and the earnings above the cost of maintenance and operation were \$241,822.21.

To the beginning of the fiscal year 1920 the excess of expenses over revenues had made a deficit in the account amounting to \$4,618,990.75. This deficit will be decreased to about \$2,500,000 by the earnings in the fiscal year ended June 30, 1920.

Tolls constituted about 96 per cent of the revenues. Other items are licenses and taxes, court fees and fines (about \$150,000), and profits on the business operations of the canal adjuncts. The latter item amounts to about \$200,000 for the fiscal year 1920, and is on operations in which the expenditures were over \$14,000,000.

Seattle Traffic

The record of traffic at the port of Seattle and in the Washington customs district, including months for which figures are now available, follows:

FOREIGN IMPORTS, EXPORTS AND TONNAGE Passing Through Washington Customs District

1920	Imports	Exports	Total	Entered, Tons	Cleared, Tons	Total, Tons
January	\$29,964,055	\$15,883,758	\$45,847,813	242,633	280,827	523,460
February	40,708,726	15,989,197	56,697,923	273,702	266,873	540,575
March	46,392,720	32,780,040	79,172,760	302,678	282,694	585,372
April	32,713,226	25,156,134	57,869,360	280,959	243,328	524,287
May	38,291,480	12,299,371	50,590,851	291,641	289,354	580,995
June	28,549,857	18,392,975	46,942,832	297,591	168,389	465,980

SEATTLE PORT TRAFFIC 1920

Deep Sea Arrivals			Deep Sea Departures		
No. Ships	Net tonnage	Month	No. Ships	Net tonnage	Month
220	284,587	January	237	320,212	January
220	302,153	February	236	303,467	February
290	341,705	March	299	325,161	March
328	331,921	April	348	334,540	April
376	328,594	May	392	324,932	May
373	332,666	June	433	346,849	June
417	441,626	July	461	444,607	July

WASHINGTON CUSTOMS DISTRICT

—Entrances—			—Clearances—		
Jan.—American	No.	Tonnage	Jan.—American	No.	Tonnage
Foreign	61	87,385	Foreign	106	128,962
	185	155,268		187	151,865
Feb.—American	346	242,653	Feb.—American	383	280,827
Foreign	117	88,528	Foreign	173	98,347
	183	188,174		176	168,526
Mar.—American	330	276,702	Mar.—American	349	266,873
Foreign	185	118,794	Foreign	174	107,134
	161	183,884		155	175,560
Apr.—American	346	302,678	Apr.—American	329	282,694
Foreign	177	127,786	Foreign	174	91,676
	179	153,173		168	151,652
May.—American	356	280,959	May.—American	342	343,328
Foreign	228	107,183	Foreign	272	107,414
	188	184,458		194	181,910
June.—American	416	291,641	June.—American	466	289,354
Foreign	264	135,420	Foreign	238	93,617
	190	162,171		194	174,772
	454	297,591		432	268,389

cess of expenses of operation and maintenance, new records were, likewise, established during the fiscal year. The summation of charges has not been completed in detail, but the figures indicate aggregate revenues approximating \$8,800,000 during the year. Expenses of operation and maintenance, including a proportion of overhead, in which are the expenses of civil government, hospitals, quarantine and sanitation, the executive department, the accounting department, the Washington office, the operation and repairs of storehouses and quarters, lighting of streets, operation of water and sewer systems, and roads, etc., total about \$6,650,000. This indicates an excess of about \$2,150,000.

No profit has been made in a commercial sense, since there is no consideration of interest or depreciation.

The previous record for a year for

Panama Canal Traffic

Whole cargoes handled through the Panama canal during July, with summaries for earlier months of the year, follow:

ATLANTIC TO PACIFIC

	No. of cargoes	Tons
Coal	15	70,856
Fuel oil	8	71,568
Steel	3	1,853
Sugar	1	3,090
Fuel briquettes	1	3,184
Spelter	1	2,000
Mixed and general	71	253,100
Total	100	421,570

PACIFIC TO ATLANTIC

	No. of cargoes	Tons
Flour	9	62,628
Wheat	7	54,614
Cold storage food products	7	45,961
Nitrate	5	23,435
Rice	4	27,412
Lumber	4	14,484
Lubricating oil	2	20,642
Sugar	3	19,995
Beans	1	4,601
Mixed and general	55	215,715
Total	97	488,497

SUMMARY FOR JULY

Number of commercial vessels	225
Registered net tonnage of above	702,951
Total commercial cargo handled	886,814
Vessels without cargo	33
Registered net tonnage of vessels without cargo	102,656

SUMMARY FOR JUNE

Number of commercial vessels	201
Registered net tonnage of above	575,027
Total cargo handled (tons)	834,421
Vessels without cargo	20
Registered net tonnage of vessels without cargo	52,890

SUMMARY FOR MAY

Number of commercial vessels	224
Registered net tonnage of above	694,941
Total cargo handled (tons)	974,919
Vessels without cargo	25
Registered net tonnage of vessels without cargo	88,043

SUMMARY FOR APRIL

Number of commercial vessels	220
Registered net tonnage of above	672,169
Total cargo handled (tons)	855,563
Vessels without cargo	37

SUMMARY FOR MARCH

Number of commercial vessels	235
Registered net tonnage of above	676,270
Total cargo handled (tons)	894,516
Vessels without cargo	42

SUMMARY FOR FEBRUARY

Number of commercial vessels	208
Registered net tonnage of above	579,842
Total cargo handled (tons)	701,739
Vessels without cargo	33

SUMMARY FOR JANUARY

Number of commercial vessels	238
Registered net tonnage of above	632,154
Total commercial cargo handled	894,628
Vessels without cargo	45
Registered net tonnage of vessels without cargo	94,448

San Francisco Traffic

During August, 427 vessels totaling 653,000 tons arrived at the port of San Francisco. Of this, sail tonnage amounted to 70,459. The total tonnage of arrivals from foreign ports was 132,673. Departures from San Francisco in August totaled 564,000 tons, the total number of vessels being 408. The departures for foreign ports amounted to 184,593 tons.

Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—
A Record of Collisions, Wrecks, Fires and Losses

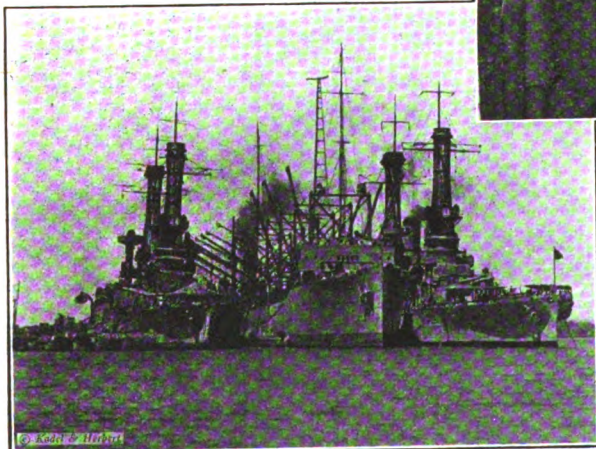
NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING	NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING
Alsace	Aug. 18	Collision	Off Clinton	Not stated	Lake Ellsberry	Aug. 15	Grounded	Erith	Not stated
Andrew Jackson	Aug. 16	Disabled	Falmouth	Filter box leaking	—(lighter)	Aug. 21	Collision	Narragansett bay	Sank
	Aug. 31	Disabled	At sea	Boiler trouble	Lake Ellsberry	Sept. 1	Lost blade	Off Boston	Not stated
Alta	Aug. 15	Leaking	At sea	Not stated	Lyman Stewart	Aug. 31	Collision	Off Fort Bragg	Not stated
Arncliffe	Aug. 13	Grounded	River Seine	Not stated	Manoa	Aug. 11	Collision	Off Presidio	Damaged superstructure
Arakan	Aug. 29	Grounded	Off Point Reyes	Not stated	Montara	Aug. 13	Grounded	Off Louisburg	Abandoned
Anthracite Bridge	Aug. 29	Grounded	Bay Salonica	Not stated	Moshico	Aug. 15	Disabled	Jacksonville	Blades broken
Ambridge	Aug. 10	Disabled	Halifax	Boiler trouble	Masseneau	Aug. 18	Repairs	Fayal	Not stated
Albatross	Aug. 12	Fire	At sea	Abandoned	Mattolo	Aug. 21	Collision	New York	Slight
Anna C. Minch	Aug. 31	Struck bank	St. Clair river	Damaged rudder	Muscatine	Aug. 13	Brine pipe trouble	Buenos Aires	Cargo damaged
Argenta	Sept. 3	Disabled	Las Palmas	Pump trouble	Mopang	Aug. 30	Disabled	Off Irish coast	Engine trouble
Ashburn	Sept. 4	Disabled	St. Michaels	Boiler trouble	Aug. 22	Fire	At sea	Not stated	
Adeliza D.	Sept. 4	Collision	Brown Banks	Lost bowsprit and headgear	Montauk	Aug. 4	Grounded	Off Lite island	Total loss
Allies	Sept. 7	Collision	River Clyde	Not stated	Moline	Aug. 23	Grounded	Nuevitas	Not stated
Banicaa	Aug. 18	Collision	Off Clinton	Damaged plates	Mary A. McGregor	Aug. 28	Grounded	Georgian bay	Total loss
Brandon	Aug. 18	Disabled	Boston	Steerer trouble	Manchester Division	Aug. 15	Collision	Off Red island	Not serious
Botsford	Aug. 27	Engine trouble	Off Atlantic City	Not stated	M'Keesport	Aug. 31	Disabled	New York	Steerer trouble
Brookhaven	Aug. 25	Lost rudder	At sea	Not stated	Myron C. Taylor	Sept. 1	Fire	Cadiz	Total loss
Byron	Aug. 25	Grounded	Rio Grande do Sul	Lost blade	Marshall Haig	Sept. 2	Grounded	Limfjord	Not stated
				None	Montrose	Aug. 31	Typhoon	Manila	Stem post broke
Buttonwood	Sept. 1	Short coal	St. Johns	Not stated	Maid of Brazil	Sept. 3	Afire	Cherbourg	Not stated
Benowa	Sept. 5	Grounded	Parana river	Not stated	Manica	Sept. 6	Grounded	Thyboroen canal	Not stated
Buccaneer	Sept. 6	Grounded	Off Bayonne, N. J.	Not stated	Netherton	Aug. 19	Fire	At sea	Abandoned
					Nawitka	Aug. 23	Grounded	Vogel Sand	Heavy
Canastota	Aug. 19	Tail shaft trouble	Auckland	Heavy	Northern No. 30	Aug. 25	Fire	Wilmington	Cargo damaged
Cap Nord	Aug. 19	Collision	Off Portland, Me.	Lost head gear and jib boom	Naiwa	Aug. 15	Grounded	Off Florida coast	Not stated
Cuba	Aug. 13	Collision	New York	None	Nonantum	Aug. 16	Disabled	Trinidad	Mach. trouble
Cavalier	Aug. 16	Collision	Off Lockport	Leaking	Norlina	Aug. 31	Grounded	Limfjord	None
City of Everett	Aug. 21	Repairs	Jacksonville	Not stated	Newton	Sept. 2	Grounded	North Reef	Not stated
Cuyler Adams	Aug. 12	Grounded	Lime Kiln channel	Not stated	Nitonian	Sept. 4	Collision	Brown Banks	Not stated
Conemaugh	Aug. 12	Grounded	Off Sanilac	Leaking	Ontario	Aug. 13	Fire	Boston	Damaged cargo
Charles M. Warner	Aug. 15	Grounded	Lake St. Clair	Not stated	O. T. Waring	Aug. 21	Collision	Clifton	Not stated
Chipchung	Aug. 12	Disabled	Honolulu	Boiler trouble	Orle	Sept. 1	Disabled	Bermuda	Rudder damaged
Cretic	Aug. 15	Explosion	Genoa	Laborers hurt	Port Napier	Aug. 17	Explosion	At sea	Not stated
Coweta	Aug. 14	Grounded	Horseshoe shoal	None	Pomona	Aug. 13	Collision	New York	None
C. D. No. 33	Aug. 14	Disabled	At sea	Engine trouble	Panola	Aug. 17	Disabled	At sea	Boiler tubes burst
Chicomico	Aug. 14	Disabled	Port Said	Mach. trouble	Pacific	Aug. 22	Grounded	Vancouver island	Hole in bow
Callao	Aug. 31	Fire	Buenos Aires	Cargo damaged	Port Saunders	Aug. 15	Disabled	At sea	Pump trouble
C. W. Watson	Sept. 2	Fog	Off Ashtabula	Grounded	Puritan	Aug. 30	Leaking	West La Havre	Heavy
Colusa	Aug. 31	Typhoon	Manila	Cargo damaged	Pottersville	Aug. 16	Collision	Off Montauk point	Not stated
Cowee	Aug. 29	Disabled	Fayal	Slight	Pocahontas	Aug. 27	Disabled	Off Governor's island	Not stated
Clarence E. Moulton	Sept. 6	Afire	Isle de Croix	Not stated	Pengelly	Sept. 3	Collision	Lourenca Marques	Slight
City of Omaha	Sept. 3	Grounded	Off Honmoku	Not stated	Pasadena	Sept. 4	Disabled	Callao	Pump trouble
Champagne	Sept. 7	Short coal	St. Johns	None	Regina	Aug. 18	Foundered	Off Forbes point	Total loss
Dade County	Aug. 27	Fire	Havana	Not stated	Rumney	Aug. 16	Disabled	Fayal	Pump trouble
Dromore Castle	Sept. 4	Grounded	East London	Not stated	Ransom B. Fuller	Sept. 2	Collision	Boston	Damaged stem
Eelbeck	Aug. 17	Collision	Off Five Fathom bank	Damaged plates and stem	Ripley Castle	Sept. 3	Collision	Lourenca Marques	Slight
Eurydames	Aug. 11	Collision	Off Presidio	Damaged bulwarks	Richmond	Aug. 31	Collision	Off Fort Bragg	Heavy
Eastern Sailor	Aug. 22	Disabled	At sea	Broken shaft	San Fernando	Aug. 18	Grounded	Rio de Janeiro	Leaky
Eastern Trader	Aug. 15	Grounded	Off Black Point	None	Salinas	Aug. 18	Grounded	Off Cape Cod	Not stated
Eglantier	Aug. 16	Collision	Antwerp	Not stated	South Coast	Aug. 14	Grounded	Rodgers Break	Not serious
Eastern Mariner	Sept. 2	Typhoon	Manila Harbor	Grounded	San Remo	Aug. 29	Grounded	Off Macoris	Not stated
E. N. Saunders, Jr.	Sept. 2	Lost anchor	Superior, Wis.	Not stated	Sonja	Aug. 23	Fire	Chatham, N. B.	Not stated
Egremont Castle	Aug. 31	Typhoon	Manila	Slight	Superior City	Aug. 20	Collision	Whitefish point	Total loss
Faustina	Aug. 26	Grounded	Trepassey	Not stated	Sherewog	Aug. 23	Leaking	Gulfpot	Serious
Fueloil	Aug. 16	Disabled	Gulf of Mexico	Mach. trouble	Snug Harbor	Aug. 16	Collision	Off Montauk point	Sank
Friendship	Aug. 26	Collision	Off Hoffman Island	Hole in bow	St. Croix	Aug. 31	Grounded	Buzzard's bay	Total loss
Frankmere	Aug. 21	Disabled	Rio de Janeiro	Mach. trouble, lost blade	Santa Olivia	Aug. 31	Collision	Callao	Slight
G. A. Flag	Aug. 18	Short Fuel	Newport News	None	Sagua	Sept. 3	Disabled	Sagua	Not stated
Gerfalcon	Aug. 19	Grounded	Pulpit ledge	Not serious	T. P. Whelan	Aug. 17	Grounded	Iroquois point	Total loss
Grecian	Aug. 30	Grounded	Long Island Head	None	Tanamo	Aug. 20	Disabled	At sea	Engine trouble
Hatteras	Aug. 12	Grounded	On Florida Coast	Not stated	Tenzan Maru	Aug. 30	Missing	At sea	Not known
Hipicium	Aug. 27	Heavy weather	At sea	Totally dismantled	Tennessee	Aug. 21	Collision	Narragansett bay	Not stated
Hico	Aug. 13	Disabled	Flushing Roads	Mach. trouble	Tunisian	Aug. 15	Collision	Off Red island	Not serious
Hockelaga	Aug. 31	Disabled	St. Johns	Engine trouble	Trollind	Aug. 15	Disabled	Falmouth	Mach. trouble
Ile de Ceylon	Aug. 18	Grounded	Hen and Chickens shoal	Not stated	Tiverton	Aug. 14	Collision	Gravesend	Damaged bow
Imperator	Aug. 16	Grounded	Off Cape Elizabeth	Heavy	Tonesit	Sept. 1	Disabled	St. Johns	Blades lost
Itasca	Aug. 18	Collision	Newport	Sank	Twilite	Sept. 7	Collision	Off Clinton	Not stated
Innoko	Aug. 29	Grounded	La Plata	None	Ubbergen	Aug. 24	Disabled	Waterford	Mach. trouble
Irma	Aug. 12	Grounded	Seely's cove	Total loss	Victoria	Aug. 7	Grounded	York beach	Heavy
James H. Shrigley	Aug. 17	Grounded	Lake Ontario	Heavy	William Bowden	Aug. 10	Grounded	Quillaynte river	Not stated
Joe	Aug. 29	Grounded	Torre Vieja bar	Not stated	Walter A. Luckenbach	Aug. 17	Collision	Off Five Fathom bank	Heavy
Killarney	Aug. 18	Grounded	Off Boston	Not stated	West Avenal	Aug. 19	Collision	Off Stapleton, S. I.	Life boats smashed
Kaduna	Aug. 13	Fire	Simontown	Cargo damaged	Waziristan	Aug. 18	Grounded	Narsen island	None
Kanawha	Aug. 30	Disabled	At sea	Boiler trouble	West Hardaway	Aug. 17	Disabled	Hamburg	Engine trouble
Kelley Island	Aug. 30	Struck obstacle	Off Pelee point	Heavy	West Lianga	Aug. 17	Disabled	Liverpool	Mach. trouble
Kanakee	Aug. 13	Disabled	Bermuda	Not stated	Watchful	Aug. 23	Grounded	Bonavista bay	Not stated
Kate G. Pedersen	Aug. 31	Leaking	At sea	Not stated	Western Belle	Aug. 27	Fire	Philadelphia	None
Lake George	Aug. 17	Grounded	Off Copenhagen	Not stated	Willis L. King	Aug. 20	Collision	Whitefish point	Not serious
Lycoming	Aug. 27	Disabled	Falmouth	Boiler trouble	Willis L. King	Aug. 25	Disabled	Port Said	Boiler trouble
Leonite	Aug. 30	Disabled	Falmouth	Boiler trouble	Wishambrie	Aug. 24	Disabled	Mobile	Boiler trouble
Louise	Aug. 20	Disabled	Off Magdalena bay	Mach. trouble	W. P. Snyder, Jr.	Sept. 3	Grounded	Ashtabula harbor	Not stated
Lake Fugard	Aug. 10	Disabled	Providence, R. I.	Not stated	Wyoming	Sept. 7	Collision	Off Clinton	Not stated
					W. H. Woodin	Sept. 6	Disabled	St. Johns	Broke rudder head

Photographs from Far and Near



What the transformation of an Atlantic liner from a coal to oil burner means to the stokers is shown in these illustrations of the fireroom of the Aquitania. In addition to the fact that fewer men are required, the conditions under which they work are revolutionized. Higher type of men, clean, comfortable quarters, these are some of the corollaries that result

After end of No. 4 fireroom showing boiler ends and oil unit pump on the Aquitania. This view was taken in the same position as that above which shows the stokehold before the equipment of the Cunard liner for burning oil

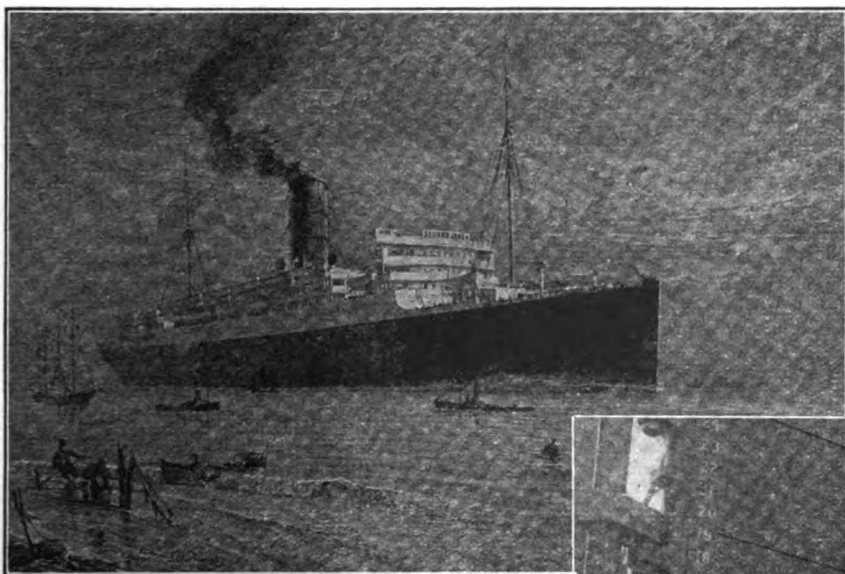


Uncle Sam's battleships now coal at Pearl harbor, Hawaiian islands. The photograph shows two of the Pacific fleet being fueled from the United States collier Proteus

Pelican of the Hudson Bay Co., about to leave Montreal for her annual trip to Hudson bay ports where the company's factories are located. Pelican is an old British man-of-war and was the first ship to carry 6-inch guns

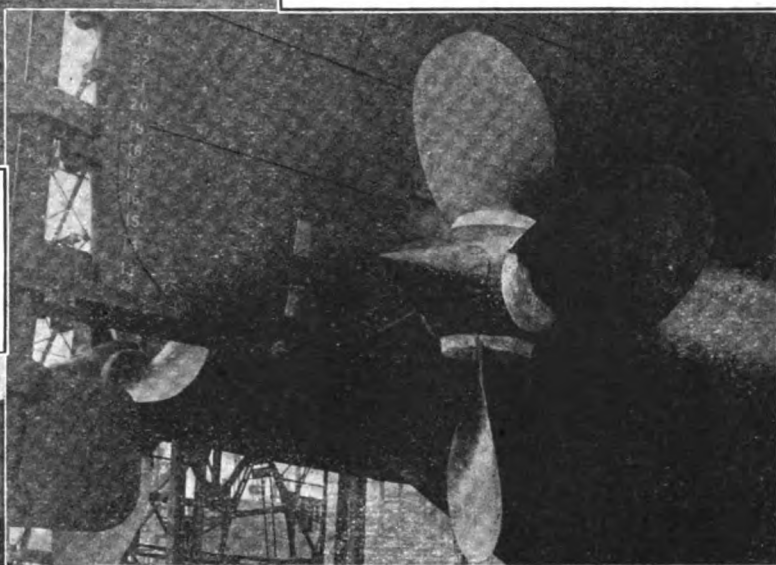
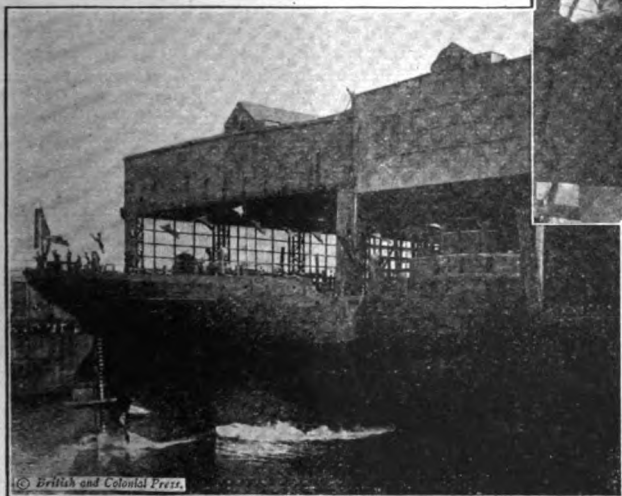


Latest Marine News in Pictures

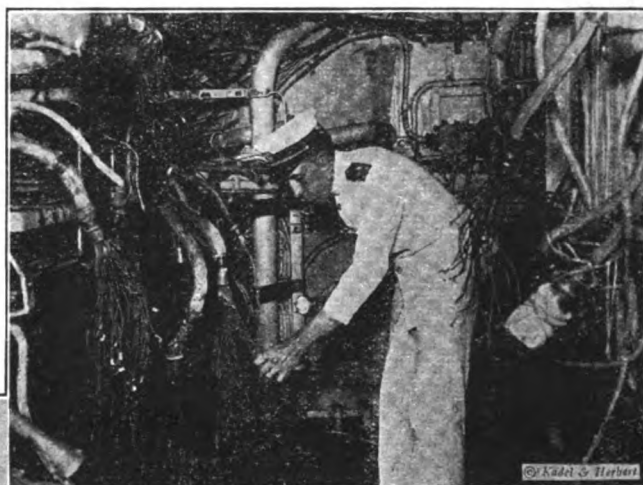
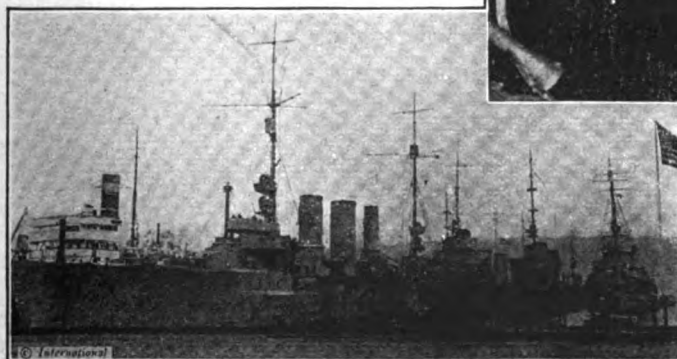


Here is the Scythia, one of the new intermediate size liners of the Cunard Steamship Co., launched recently at Barrow-in-Furness yards of Vickers Ltd., as seen by Thomas, the noted British marine painter. The "closeup" shows Scythia's propellers and rudder post. Scythia is the largest liner built in England for burning oil

One of the latest additions to Canada's fast-growing merchant marine is Canadian Conqueror, launched recently at the Montreal yards of the Canadian Vickers Co.



Ostfriesland, dreadnaught, Frankfort, light cruiser, and destroyers S-132 and G-102, now lying at dock in the Hudson river, were German ships allotted to the United States under the terms of peace



The vandalism of the Germans is shown by the fact that after Ostfriesland had been turned over to the United States every instrument aboard was found smashed or ripped open. F. C. Struss, electrical gunner, is showing some of the damage

Late Decisions in Maritime Law

Legal Tips For Ship Owners and Officers

Specially Compiled for The Marine Review

By Harry Bowne Skillman

Attorney at Law

THE issue in the case of Frederick Leyland & Co. Ltd., vs. Hornblower, 256 *Federal Reporter* 289, was whether the provision of a bill of lading, "not accountable for any goods of whatever description beyond the sum of 20 pounds per package, unless the value be herein expressed and extra freight as may be agreed on paid," was unreasonable and invalid. The court held in the negative and quoted from an earlier decision in which it was said, "It is competent for a steamship company as a carrier of goods to limit its liability to a certain amount in case of loss, even as against its own negligence, where the valuation is the basis on which freight is charged, and this fact was fully known to the shipper." The bill of lading further provided, "the shipowner is not liable for any loss, detriment, or damage to any goods capable of being covered by insurance, and if liable is to have the benefit of any insurance effected upon the goods," and the court held with relation thereto that the shipper who had insured his shipment in a named sum, and "while on board steamers," could not recover for damage in unloading the shipment, and, therefore, no insurance against loss by such damage was effected, so that an arrangement by which the insurer advanced a sum to the shipper on a borrowed and loan receipt did not inure to the benefit of defendant company.

* * *

Any intended deviation from a voyage described in a policy of marine insurance, to be accomplished thereafter, would not avoid the insurance, according to *North British & Mercantile Insurance Co. vs. H. Baars & Co.*, 255 *Federal Reporter* 625. An abandonment of the voyage insured would, however, avoid the policy, since it was not permitted by the policy, and this would be true, though the loss occurred while the vessel was still on the common course and before it had reached the point of divergence.

* * *

Upon a ship's arrival in port, the master is entitled to a reasonable time to prepare himself to comply with any demands made upon him for half-wages under section 4 of the seamen's act, and where seamen accepted store orders offered by a master and used them in part, the master not having money on hand and the banks being closed, the master was authorized to assume that the men would not insist on further payment, at least until he was notified to the contrary by a second demand, and he was entitled to a reasonable time after such second demand to get the money with which to comply with

it. The men's requirement of instant compliance with their demand was unreasonable, and it was held in the case of *PINNA*, 255 *Federal Reporter* 642, that the men by leaving the ship without the master's consent, to enforce their claim for full wages, became deserters and forfeited their wages. "The purpose of section 4 of the seamen's act," the court said, "was to furnish a remedy by which sailors could procure a proportion of their earned wages at each port, and not to provide a method by which the shipping articles could be terminated at the will of the seamen, because of a failure on the master's part to instantly comply with a demand by the seamen, which was made with the purpose of procuring the right to demand a discharge from the shipping articles, rather than the payment of half of the earned wages under them."

* * *

Where the charterer of a steamship furnishes the whole cargo, and loads and discharges her with its own stevedores, the charter party reciting that bills of lading are to be signed without prejudice to the charter, but not less than charter rates, the steamship is not a common carrier, and in an action for damage to the cargo the burden is cast on the charterer to prove negligence affirmatively.—*LYRA*, 255 *Federal Reporter* 667.

* * *

Desertion, in the sense of the maritime law, is defined in *ITALIER*, 257 *Federal Reporter* 712, as a quitting of the ship and her service, not only without leave and against the duty of the party, but with an intent not again to return to the ship's duty. The offense of desertion in the mercantile marine was not abolished by the seaman's act of 1915, and a deserter forfeits all wages due him. "While it is true," said the court, "that arrest for desertion, the bodily return of the deserter to his ship, and generally the holding of a seaman to his shipping contract by physical force, are things of the past, even in respect of foreign vessels so far as the United States is concerned, desertion is still an offense on American vessels, entailing (*inter alia*) forfeiture of all or any part of the wages or emoluments which the deserter has then earned."

* * *

The word "vessel," as used in sections 4283-4289 of the United States revised statutes, which limit the liability of vessel owners for collisions occurring without their privity or knowledge, was held in the case of *Eastern Steamship Corp. vs. Great Lakes Dredge & Dock Co.*, 256 *Federal Reporter* 497, to include a drillboat, described as a navigable structure having a permanent

cargo, viz., its engines, boiler, drilling machinery, etc., which it transported from place to place for the purpose of removing dredges in navigable waters and as an aid to commerce and navigation. In reaching this conclusion, the court considered a number of adjudicated cases in which the word "vessel" was variously held to include a barge without motive power used to transport excursion parties, a mud scow, a scow originally constructed and used for carrying stone and later provided with a derrick and used for raising stone, a scow carrying a pile driver permanently attached thereto, and a pumpboat used for pumping out coal barges.

* * *

A seaman on a British ship who, while his ship was in a United States port and before making any demand for wages, refused to do any more work and left the ship, with the intention of having her finally sail without him, thereby became a deserter, and under the Merchants Shipping act of 1894 of the United Kingdom he forfeited all his effects and wages.—*WELLS CITY*, 256 *Federal Reporter* 689.

* * *

Section 9 of the shipping board act provides that any vessel purchased, chartered, or leased from the board may be registered or enrolled as a vessel of the United States and entitled to the benefits and privileges appertaining thereto, and, further, that every vessel purchased, etc., from the board shall, unless otherwise authorized by the board be operated only under such registry or enrollment and license, and that such vessels while employed solely as merchant vessels shall be subject to all laws and liabilities governing merchant vessels, whether the United States be interested therein as owner, in whole or in part, or hold any mortgage, lien, or other interest therein. The business situation which congress had in mind in passing this section, it was said in *G. A. FLAGG*, 256 *Federal Reporter* 852, was one in which vessels would be acquired by the board, and operated under charter or lease from it, or sold by it outright, and the basic intention was that merchant vessels should gain no exemption from the ordinary legal liabilities because of any interest which the United States might have in them. The court then held that a vessel requisitioned by and registered in the name of the United States, while proceeding light from the Great Lakes to New York, by way of Montreal, "for entering upon the public service of the United States," was not employed solely as a merchant vessel and was, therefore, entitled to claim exemption as a government vessel for injuries received by a seaman.

More Orders for American Yards

Sufficient Business Forecast to Keep Shipbuilding Plants Active — Developments of Past Month

THE winding up of contracts on government account, the usual summer slump in the steamship business, coincident with the threatened close of some of the weaker shipbuilding yards has engendered a spirit of artificial pessimism in the American shipbuilding industry. Notwithstanding, there were some decidedly hopeful signs during the past month. Wallace Downey, president of the Downey Shipbuilding Corp., declared:

"I think that the future of American shipbuilding is the most promising in the history of the industry. While reports are being circulated that the American shipbuilding industry is gradually dying I do not believe that there is any reason to feel other than decidedly optimistic."

Leader in Shipbuilding

J. W. Isherwood, the English shipbuilder who has been touring the United States, declared upon sailing:

"There is no question about the United States now being foremost in the leadership in ship construction. There has been a marked improvement in the building of ships on this side of the Atlantic. I found evidence of this in every shipbuilding yard that I visited while in the States. The output from now on as regards freight steamers will not be so large because of the immense number of freighters built during the war and immediately after the war that have been released to private operation during the past year."

Lloyds estimates that the maritime tonnage of the world in June, 1914, totaled 49,090,000 gross tons, and in June, 1920, totaled 53,905,000. But of this latter total, only 45,587,000 tons are ocean-going. That the present tonnage appears ample for the present freight needs of the world is due largely to the dislocation of international trade. Under normal trading conditions, the tonnage needs of the world will be much larger than the present merchant fleets will be able to satisfy. In the gross is included some 1,000,000 tons of wooden ships built by the United States shipping board and many small steel ships. Future requirements of shipping, therefore, will necessitate considerable shipbuilding, but that effect may not be felt fully until Europe has recovered stability, political conditions are settled, and international exchange reverts to normal. Present conditions in the shipping

business make profitable the building of tankers, fruit steamers and such specialties in which the merchant marines are now short. Many plans are under way by steamship owners for building new passenger ships, but the actual letting of contracts may be several months in the future. Construction will be promoted by that provision of the new shipping act which exempts a steamship company from the profits tax when the money is invested in a new boat built in an American yard. Such an exemption is not allowed when a steamship company purchases a shipping board vessel.

Therefore, encouragement is given the companies to have new tonnage built rather than have them take tonnage off the government's hands. Under this provision of the law the shipping board last month granted permission to the Pacific Mail Steamship Co., New York, to have a 9800-ton deadweight oil tanker built by the New York Shipbuilding Corp., Camden, N. J.; the Sun Co., Philadelphia, to have a 12,800-ton single screw bulk oil steamer constructed by the Sun Shipbuilding Co., Chester, Pa.; the Standard Oil Co., of New Jersey to have 14 tankers (of a total 184,200 deadweight tons) built, 3 by the Federal Shipbuilding Co., Kearny, N. J., 3 by the Moore Shipbuilding Co., Oakland, Cal., 2 by the Sun Shipbuilding Co., 2 by the Newport News Shipbuilding & Drydock Co., Newport News, Va., 3 by the G. M. Standifer Construction Corp., Vancouver, Wash., and 1 by the Oscar Daniels Co., Tampa, Fla.; and the Vacuum Oil Co., New York, to have one 10,000 deadweight ton single screw steel oil tank steamer to be constructed by the Moore Shipbuilding Co., Oakland, Cal.

Yard to Be Sold

The last ship to be built for the United States shipping board at the Pusey & Jones yard, Gloucester City, N. J., which was launched last month, was named the WILLIAM PENN. The government took control of this shipyard in Gloucester in September, 1918, and relinquishes control in the same month this year. With the conclusion of this work, it is expected the Pusey & Jones yard will be sold. Some time ago it was reported the Baltimore Dry Docks & Shipbuilding Co., Ltd., intended to purchase this yard, but the option expired. Now it is said that

the Bethlehem Shipbuilding Co., may acquire it.

The Hog Island yard has been advertised for sale to the highest bidder. The government has given notice that all bids for this plant must be filed not later than Oct. 30.

Many of the war emergency yards naturally pass out of existence, as was the original intention for them, although some, if acquired upon extremely favorable terms may attempt to continue their usefulness in some form. The Hodge Ship Co., Pascagoula, Miss., for instance with a plant at Moss Point, Miss., is expected to reopen this fall and start building barges and medium sized vessels. This plant was started by the Emergency Fleet corporation and a number of Ferris type steamers were built there.

The steel bulk oil motorship, delivery No. 5, built by the Staten Island Shipbuilding Co., for the Standard Oil Co., of New Jersey, was given its trial trip last month.

The Tank Steamship Corp., Newburgh, N. Y., is engaged in building oil barges of 11,500 barrels capacity for the Southern Oil & Transport Co.

Big Liner Nearly Ready

Plans for taking over the new 535-foot steel passenger steamship building at the yard of the New York Shipbuilding Corp., Camden, and assigned by the shipping board to the Pacific Steamship Co., have been completed. The new vessel is intended for service between the United States and the Orient. The WENATCHEE, the name of the vessel, will be ready for delivery in November. This yard launched recently the EMPIRE STATE, sister ship to the WENATCHEE, and also the destroyer STURTEVANT for the navy department.

The Alabama Dry Dock & Shipbuilding Co., has delivered the barge MAMEI, second of the two barges which it has built for the Panama canal service. The barge was completely built in the yard of the company, including the Scotch boiler and auxiliary engines.

The 4-mast schooner ELIZABETH FREEMAN, built by the Atlantic Coast Co., at Thomaston, Me., for Crowell & Thurlow, Boston, has been launched. She measures 232 feet in length, and registers 1655 gross tons. It is expected to load her with lumber immediately, sailing from Boston for Buenos Aires.

The 10,000-ton oil tanker HARVESTER left the ways at the yard of the Texas Steamship Co., Bath, Me., last month.

She was the fourth tanker launched at this yard during 1920 and the twelfth since the yard was established at Bath.

One of the important deals of the past month was the sale of two 10,400 deadweight cargo ships made by the Skinner & Eddy Corp., to the United States Steel Corp. These ships are called ROBIN HOOD and ROBIN ADAIR, and it is understood that the Steel corporation paid but \$144.23 per deadweight ton for them, although they were but a few months old. Furthermore, the purchaser was required to pay but \$1,000,000 in

Record of Ship Gains

Seagoing tonnage of American ships has increased nearly 10,400,000 tons or almost 500 per cent, since 1914. While the period involved is six years, the great spurt in American ship construction covered only half that period. When the world war started, shipbuilding in the United States, according to a study of *America's Merchant Marine*, by the Bankers Trust Co., New York, was at its lowest rate of production in 17 years. For a year from the outbreak

24 wood shipyards comprised 73 ways.

America's great effort in shipbuilding came after 1917. So rapidly were yards created, when the nation set out in earnest to meet the world's call for ships, that before hostilities ended the United States possessed 341 ship plants for seagoing ship construction with a total of 1284 ways. This was more than double the number of shipways in the yards of all other nations combined.

In 1917 there were only 75,000 men employed in the American shipbuilding industry. By September 1918, the number had been increased to 358,882. This new army of shipbuilders produced, in the year ended June 30, 1919, a total of 1107 seagoing vessels aggregating 3,746,216 gross tons, or more than 15 times the tonnage of American steam craft that had been built in 1916 when the nation began to speed up ship construction.

New Ship for Alaska

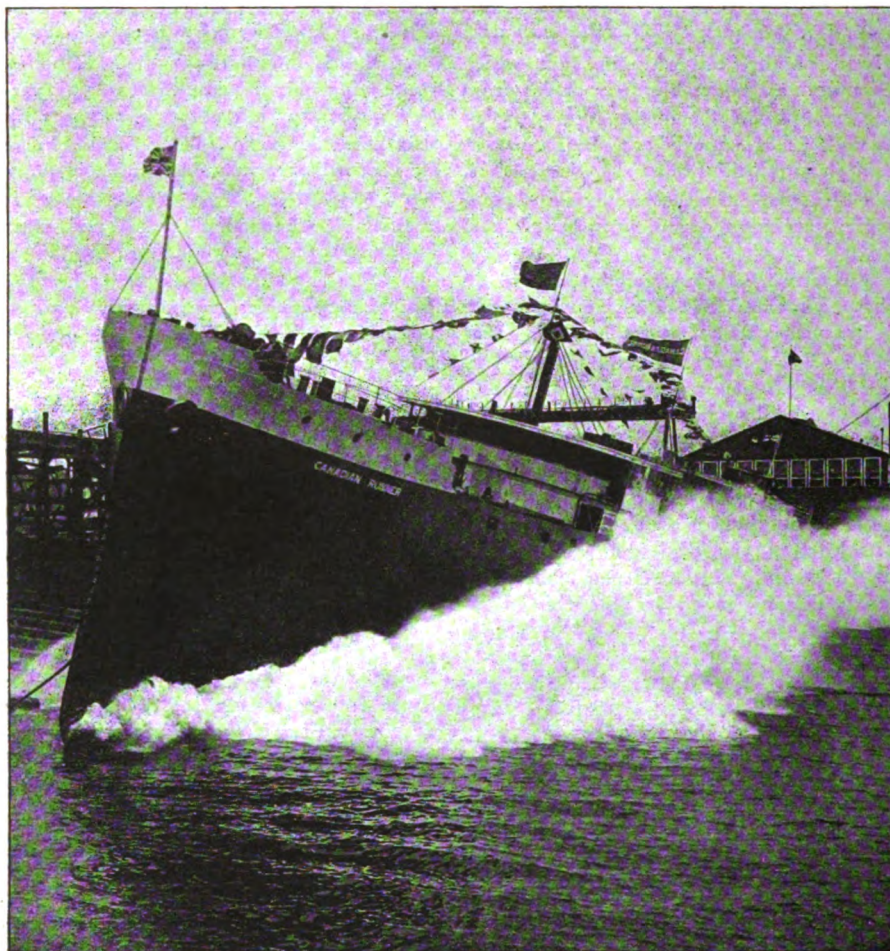
The first steel steamer, launched in Seattle since the close of the government shipbuilding program, was the 2250 deadweight ton carrier GRIFFCO which took the water on Aug. 18 at the yards of J. F. Duthie & Co. The GRIFFCO is a unit of the new fleet being prepared for James Griffiths & Sons, Seattle. The sturdy freighter was sponsored by Mrs. Albert V. Griffiths, wife of one of Captain Griffiths' sons, who are associated with him in his various enterprises.

Early in September, the same yards will launch a sister vessel, the GRIFFDU, the name being a combination of those of the owners and builders. The GRIFFDU was originally laid down for service in the Bristol channel but plans have been changed and she will be used with the GRIFFCO in general coastwise service along the north Pacific, including Alaskan and British Columbian waters.

The two new steel carriers are each of 2250 tons deadweight. They measure 220 feet between perpendiculars, with molded beam of 40 feet and molded depth of 21 feet. They are single screw and will be equipped with triple expansion shipping board engines of 1450 horsepower each. Oil will be used as fuel.

The machinery is set aft giving ample deck and hold space. The vessels will be fitted with towing engines of American Engineering Co. type. They will be classed to British Corp. and will hail from Seattle. Each has two large hatches, the general arrangement making them particularly adaptable for freight-lumber, ore or other bulk cargo.

The Griffiths interests have just added the wooden barge GRIFFSON to their fleet and the new vessels will be used ex-



OCEAN CARRIER LAUNCHED AT CANADIAN LAKE YARD

Built at Port Arthur, Ont., these 4400-ton vessels are cut in two on Lake Erie and rejoined at Montreal

cash, promising to pay \$500,000 more when the vessels are actually delivered. The remainder will be paid in installments over a period of 10 years.

This sale is considered important in view of the quoted prices made by the shipping board on the government boats which have now been formally offered for sale. The original sales offer of the shipping board provided that bids must be in by Sept. 1. Steamship people did not seriously consider this offering as it was obviously an effort on the part of the shipping board to determine what is the market for government tonnage. If no sales can be made, prices will have to be reduced.

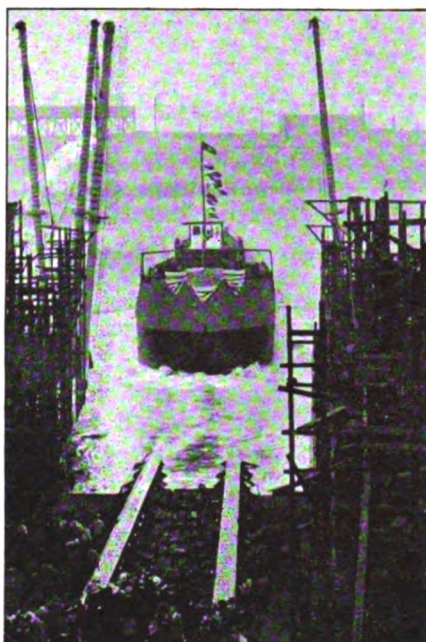
of war, the American output was only 225,122 tons of all classes of ships in yards which had a building capacity of 750,000 tons. In the following year, ended June 30, 1916, American production of steamships had increased to only 232,354 tons.

Even when the United States entered the war in 1917, the building capacity of the American yards was still far below the output required. There were at that time only 61 American shipyards which could build seagoing ships. Of this number 37, or little more than half, were equipped for steel shipbuilding. These yards had a total of 162 ways, while

tensively in towing. The GRIFFSON is the largest barge in service in Pacific waters, her deadweight capacity being 4200 tons.

This big craft was one of two canceled contracts under construction at the Seattle yards of Nilson & Kelez and was purchased by Captain Griffiths last May. At that time the hull consisted of only keel and rib frames of a Ferris type wooden steamer. She was taken to the Winslow Marine Railway & Shipbuilding plant, another Griffiths enterprise, where the sheathing and interior framing were completed. The vessel was launched the second time on Aug. 5 and is now ready for service as a modern nonpowered craft fully equipped in every respect for freighting ore or other heavy cargo. She has every device for the rapid handling of cargo and for towing.

Captain Griffiths is a pioneer in north Pacific shipping circles. For years he has operated a numerous fleet, engaged to a large extent in moving the output



LAUNCHING S. S. GRIFFCO

of Alaska and British Columbia mines to Puget sound, the vessels returning with supplies for the north. During this long experience, he has had opportunity to study the requirements of the trade. Consequently these new vessels are built after his ideas as based on practical experience. Experts are a unit in declaring that the new steel freighters and the barge GRIFFSON are all that could be desired in sturdy craft constructed for towing and for the heavy traffic of the north.

Several years ago, Captain Griffiths built the wooden steamer ANYOX for this trade and this vessel has been exceptionally successful in long distance towing. Twice this steamer has towed a barge to the Panama canal zone and South America returning to Seward and Anchorage, Alaska, making an exceedingly long tow in remarkable time. The two steel freighters are expected to be equal to bettering the enviable records which have been already hung up by the ANYOX.

Record Marine Show at Chicago

OCEAN steamship companies on both the Atlantic and the Pacific, together with several Atlantic coast shipbuilding companies, will be featured at the Chicago marine show which is to be held in the Coliseum, the week of Oct. 18-23. In addition, the larger manufacturers of marine fittings and supplies will have exhibits. The shipbuilders of the lakes district and the steamship companies operating on the lakes have not contracted for space to an equal degree. As a result, the prospects are that a typical deep-sea exhibit will be staged for the edification of the people of the middle west.

This outcome is especially pleasing to many maritime advocates of the United States inasmuch as the Chicago show will bring the gospel of the coast maritime needs to the people of the west. Writing to the promoters of the Chicago show, Chairman Benson of the shipping board said:

"Americans are now awake to the need of loyal support for our merchant marine. We have the ships—we have the opportunity to promote the peace of the world by the development of our commerce, making proper use of these ships in doing so. It is the desire of the shipping board to co-operate with all organizations which aim to build up the efficiency and services of our merchant marine.

"It is a pleasure to know that in the work your organization did for

the marine exposition in New York City, the people of the metropolis were awakened to the opportunity now offered as a result of the merchant marine we now have. Surely the men and women of the middle west and the Mississippi valley are as vitally interested in the proper development of this merchant marine as seaboard cities and states.

"I am indeed gratified to learn that the Chicago marine show to be held in October is fast approaching a stage which promises, together with marine week 'to be the biggest thing of its kind ever held in the country.' I agree with you that there will be no limit to the results that will follow our joint efforts to arouse enthusiastic interest in the American merchant marine.

"The shipping board is now at work on its exhibit for Chicago. It is our aim to co-operate with you in every way possible to make the Chicago marine exposition a striking success."

The space available for exhibits has practically all been closed. Some of the exhibitors who entered the New York show with trepidation were not long in finding their fears groundless. Many of these closed contracts during the first day or two of that show to pay for all the expenses incurred in entering the exhibition. These persons are entering the Chicago show in anticipation of participating in a one-week mart during which they are confident of booking valuable con-

tracts. With them it is a purely business matter, and they will leave to the National Marine league the honor of reaping any benefits to be gained by spreading propaganda for the merchant marine.

The interest of the transatlantic steamship companies in the Chicago show is disclosed in the fact that by proper direction considerable shipping originating in that territory can be developed for American ships. The Munson, the Luckenbach and the International Mercantile Marine lines have already signified their intention to exhibit at the Coliseum. The exhibits prepared by these companies for the New York show were among the high spots of that exhibition. It was such exhibits as theirs which drew thousands to the Grand Central palace and startled the public with their novelty and completeness to a point where the public was stirred to a degree of unanticipated enthusiasm. These exhibits, it is understood, will be improved for the Chicago show.

Under the auspices of the National Marine league, however, there will be a measure of propaganda which is designed to be attractive rather than invidious. This feature of the show week will come to its head on Tuesday, on the evening of which day the league will hold a banquet at Congress hall. In the exhibition hall, a miniature theater will be erected in which lectures will be delivered and moving pictures projected, all illustrative of modern maritime practices.

Bits From the Log of Progress

Events of Interest to Those Engaged in Operating,
Constructing and Outfitting Yards and Ships

FOREIGN COMMERCE for the district of Washington increased almost 300 per cent for the year ended June 30, 1920, over exports and imports in 1914. Imports for the year were valued at \$173,527,650 and exports \$228,186,694, making a total of \$401,714,344. These figures do not include the value of goods forwarded in bond through the district, such as raw silk, valued at more than \$100,000,000. During the period from 1914 to 1920, the percentage of American ships leaving Washington ports for the Orient and Oceania increased from 4.8 per cent of the total number in 1914 to 43 per cent in 1920. Japan led in the number of foreign vessels, having seven times as many ships on the route as Great Britain.

* * *

THE LEVIATHAN, the biggest ship in the world, has been lying idle at Hoboken, N. J., with a skeleton crew for more than a year. On Sept. 7, 1919, she arrived from Brest with General Pershing and several thousand American troops on board. She was turned over to the shipping board by her commander, Capt. E. H. Durrell of the United States navy. During the year of idleness her upkeep has been approximately \$1,825,000, or \$5000 a day. She was the first transport the war department laid off because of her heavy consumption of coal and her large crew of 1200 officers and men. The shipping board has refused offers of steamship companies for the liner and her sale was delayed one time by a court injunction. Complete plans for reconditioning and conversion to an oil burner have been made and are awaiting favorable action by the board on bids from private companies.

* * *

THE DOWNEY Shipbuilding Corp., New York, is building three 5250-ton vessels for the Southern Pacific Co. for coast service. Their dimensions are as follows: Length over all, 352 feet; beam, 47 feet; depth, 32 feet 6 inches; speed, 12 knots. The vessels are single-screw type, with straight stem and elliptical stern.

* * *

THE GREEN STAR Steamship Corp. has purchased four 9550-ton vessels from the G. M. Standifer Construction Co., Seattle, Wash., for about \$165 per deadweight ton. The boats were built for

the shipping board, but under an agreement with the Standifer company the contracts were canceled.

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THE SUN SHIPBUILDING Co., Chester, Pa., has begun the construction of a wet basin, within which a floating drydock will be built. The basin will be 960 feet long and will have a deep water frontage of 385 feet, and at least four 13,000-ton steel steamers may be berthed.

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EIGHT MODERN port terminals built by the United States government during the war, are to be leased by the war department to private companies on terms which will reimburse the government for interest on the original investment and depreciation. The terminals are located at Boston, South Brooklyn, Port Newark, Philadelphia, Baltimore, Norfolk, Charleston, and New Orleans. Each of the ports includes warehouses, three or more piers, and is equipped with the most modern and efficient cargo handling apparatus. They have been described fully in earlier issues of THE MARINE REVIEW.

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A SUCCESSFUL dock trial was held recently on the steamer NICARAO, being completed at Shooters island, N. Y., by the Standard Shipbuilding Corp., New York. The NICARAO is a special type combination passenger and fruit steamer. A sister ship is named the HIBUERAS. Both vessels measure 235 feet between perpendiculars, 248 feet overall, and have a speed of 11 knots.

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THE NEW YORK Shipbuilding Corp., Camden, N. J., is pushing ship construction actively. Recent plans called for the early launching of three vessels, the destroyers CHILDS and NOVA, which will be launched almost fully completed, and the WOLVERINE STATE, a combination passenger and cargo steamship. But one more destroyer remains on the ways.

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THE CONSOLIDATED Shipbuilding Corp., New York, has completed the construction of an 80-foot, stern paddle, steel, cargo and passenger vessel for interests in Bogota, Colombia. The boat is to be shipped in two sections to Cartagena, Colombia, where it will be assembled from complete detailed plans provided by

the Consolidated company. The sections of the vessel are 45 feet long, 20 feet wide, and have a depth of 7 feet. They are constructed with overlapping plates which give the boat the required strength amidships, and the shallow depth fits the boat for service in strong rapids. Windlasses in the forward section will be used to help the boat through the rapids.

* * *

THE SKINNER & Eddy shipyard, Seattle, has become the Puget Sound terminal of the powerful Isthmian Steamship Co. and the Societe Generale de Transports Maritimes a Vapeur, Marseilles, France. Twenty-five American and three French ships, aggregating 271,275 deadweight tons will engage in the steamship service from this terminal to ports of the Atlantic coast, Great Britain, France, Spain and North Africa.

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THE PAN HANDLE STATE, a combination passenger and cargo ship which was launched last March by the New York Shipbuilding Corp., Camden, N. J., passed the builder's trial trip on the Delaware river recently. She has been assigned to the United States Mail Steamship Co.

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PLANS ARE being discussed by an influential group of men for the purchase of Hog island. They aim to procure the island for use as a permanent shipbuilding, repairing, and terminal yard for Philadelphia. Eight to ten ways at the east end would be used for shipbuilding, the center for repairing, and the west end as a shipping terminal.

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REPRESENTATIVES of practically all the shipyards and ship repair yards in Baltimore have taken steps toward organizing an association to promote co-operative action.

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THE PERUVIAN Shipbuilding Co., 42 Broadway, New York, is in the market for four motor ships of 8000 deadweight tons, diesel type.

* * *

THE BUREAU of steam engineering of the navy department now is known as the bureau of engineering, the change in title resulting from an act of congress passed at the last session.

How Manila Rope is Manufactured

Methods Employed in Converting Philippine Raw Material Into Rope for Marine Use

ROPE is indispensable. It is used in every industry in some form, but aboard ship and along the waterways it plays a particularly prominent part. Because of this fact, there are probably no better judges of the quality of a rope than men who are engaged in marine work.

In order to understand properly the manufacture of manila rope, it is necessary to consider some few facts concerning manila fiber from which manila rope is manu-

factured. Manila fiber is grown solely in the Philippines. The fiber is obtained from the abaca or lanut, a species of the wild banana; in fact, the manila plant resembles the ordinary banana tree in appearance and after the plant has attained a growth of about 14 months it bears a fruit very similar in appearance to the ordinary banana. At this stage the fiber is fully developed and the best textures can be obtained. The fiber is extracted entirely by hand from the leaf-stem growth, surrounded by a pulpy mass, and is separated by the process of drawing the leaf stems, which are split into ribbons, between a sharp-edged knife and a block. This is laborious work and is performed entirely by native Filipinos. Many attempts have been made to perfect machinery for extracting manila fiber but none of these mechanical devices has been able to perform this work as satisfactorily as the native Filipino workman.

The fineness or coarseness of the texture of the fiber is dependent entirely upon the manner in which it is cleaned,

the strength to the age of the plant and the manner of curing.

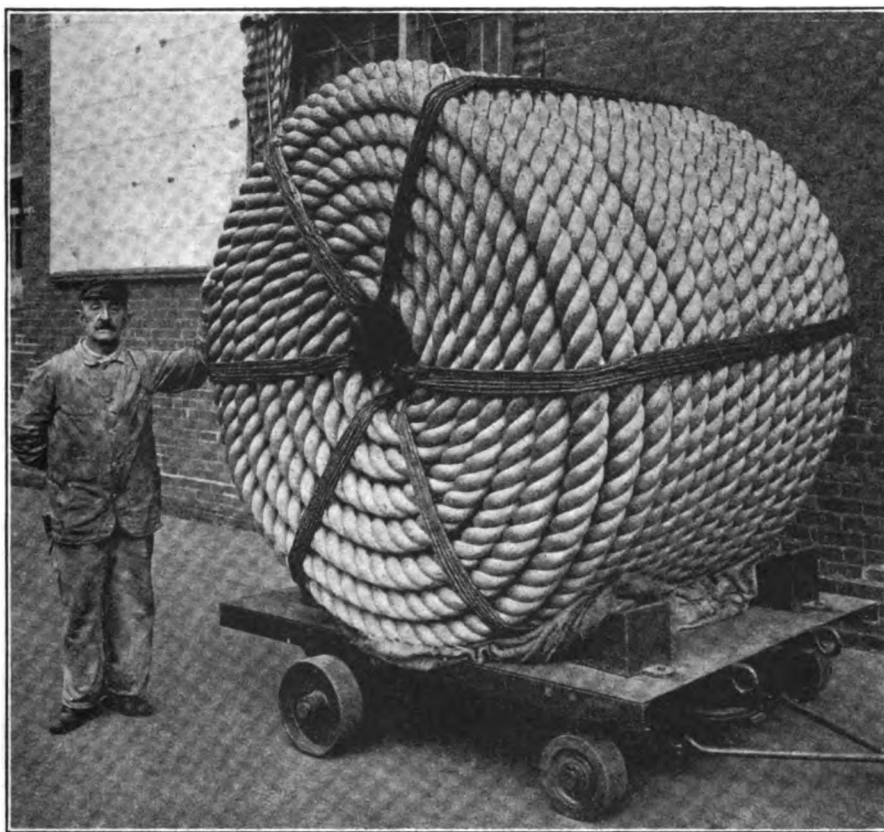
The manila plant seems to thrive in soil which is composed largely of volcanic ash and though the plant requires plenty of rain it must be grown in soil where the water can be drained off. Thus the best fiber can be obtained from those plantations which are situated on the sides of hills or mountains.

Manila fiber is selected according

to the shipment. The thorough inspection of manila fiber before it enters the opening room is important as high grade manila rope can be made of only high grade manila fiber.

When a sufficient quantity of fiber of a uniform quality has been selected, it is put through a series of machines known as breakers. These machines straighten and soften the fiber. Leaving the first breaker, the fiber passes through several finer breaking machines which

comb the fiber and remove dirt and other foreign substances and form the fiber into a long sliver, ready for spinning. The sliver then passes on to the spinning jenny which draws it out and twists it into rope yarn of a specified weight. The weight of the yarn is regulated by adjusting the gears of the spinning jenny. The yarn is automatically wound onto bobbins which, when filled, are removed from the spinning jenny and carried to the ropemaking machines where the strands of the rope are made. Here the bobbins are placed upon



250 FATHOM COIL OF 15-INCH ROPE USED AS A TOWING HAWSER

to the fineness of the fiber—the finer the fiber, the higher the quality. Thus the fineness of the fiber and not the length determines the quality. Many low grades of fiber are longer than the very high grades.

After the fiber has been extracted from the leaf stem, it is washed and dried in the sun. It is then taken to market and sold to the local warehouse man who sorts and packs the fiber into bales which weigh about 270 pounds each.

When the fiber is shipped to the rope mill, the first process in the manufacture of manila rope is an examination by experts of the bales composing

racks and a number of the yarns, depending upon the size of the rope to be made, are then twisted into a strand, which is the third part of the rope. As the strand is made it is wound upon large reels.

The next step is to lay the strands into rope. Three or four strands, depending upon whether 3 or 4-strand rope is being made, pass simultaneously through the laying machine which lays the strands into rope. As the rope leaves the laying machine, it is wound onto a reel from which it is removed, already coiled and ready to be burlapped. Forming the strand and the



Cutting down a manila tree in the Philippine islands and drying the fiber, the first steps in making manila rope



Filipino boys stripping hemp to be sent to a cleaning plant and baled for export to American rope factories



Hemp grower hauling crop to market in Cebu, Philippine islands

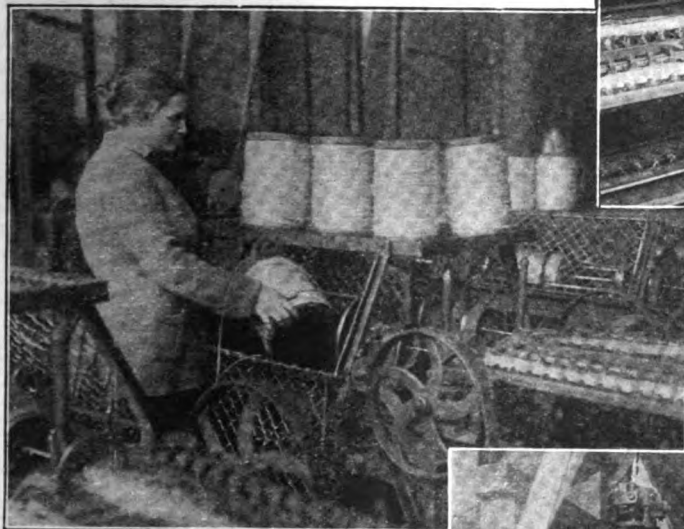
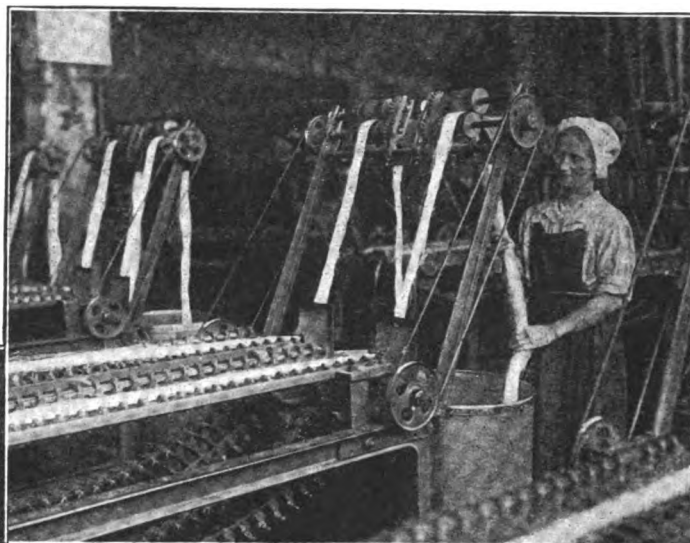


Assorting manila fiber to insure that only first-class raw material is used



The fiber after assorting passes through a breaker in which it is straightened and combed

Spinning the yarn which is automatically wound on to bobbins



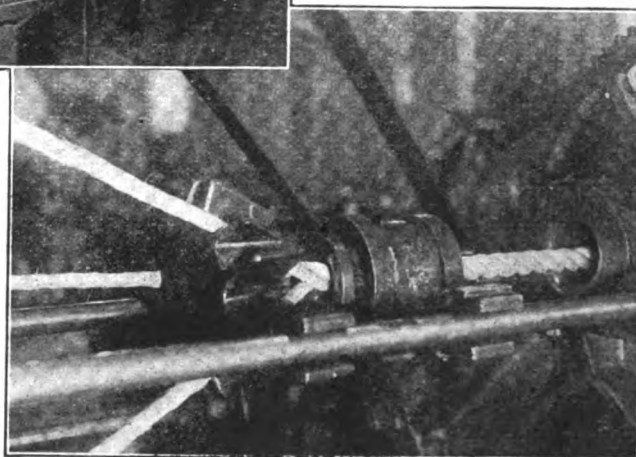
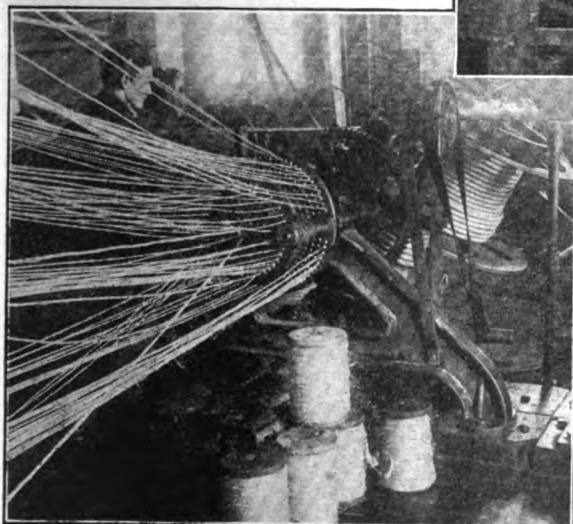
Sliver or combed fiber passing into the spinning jenny to be spun into yarn

Upright rope layer, single process machine, making rope from yarn without intermediary processes of forming the strand

Forming the strand or third part of a rope, the number of yarns used depending on size of rope desired



Laying the rope, the three strands passing through the layer forming the rope



laying of the strands into rope are very important steps in the manufacturing process, and require the services of men who are thoroughly skilled in their work. Great care must be exercised in order to insure equal tension on every strand for, if the tension were not equally distributed throughout the entire length of the rope, one strand would be shorter than the other two and bear the full strain when the rope is put to work. This strand would either break at once or force in toward the center, pushing the other strands out, giving the rope a corkscrew appearance and rendering it unfit for use. A rope, like a chain is only as strong as its weakest part.

The accompanying illustrations give a comprehensive idea of the various steps which occur in the process of manufacturing manila rope.

The utmost care must be taken in every one of these rope making processes in order to insure a uniform rope, that is, rope that will possess the same qualities throughout the entire length.

Strength in rope is quality and this can only be obtained by using fiber which has been selected because of its strength and by employing machinery that is designed to make high grade rope and to have the machinery operated by men who are masters of the art of rope making.

Book Review

Lloyd's Register of American Yachts; cloth; 472 pages; 7 x 9 inches; published by Lloyd's Register of Shipping, and supplied by THE MARINE REVIEW for \$12.

This register has become a standard reference list of all yachts owned in the United States, Canada and the West Indies. Publication in its present form was first begun in 1903, the present edition thus being the eighteenth successive number. The work was begun to provide a register, national in scope.

Complete particulars of all yachts are given together with lists of officers, a list of designers and builders, signal letters of yachts, and a complete list of yacht owners with addresses, clubs and yachts. Plates showing club burgees and private signals of yachtsmen, are included together with a trade directory. All yachts are shown in one alphabetically arranged list, the earlier division between steam and sail yachts having been dropped some years ago owing to the introduction of other types of motive power and the rapid changing of yachts from one division to another. The register includes all cruising yachts without fixed limit of size.

German Lloyd Active

Gustav Schmitt, American representative of the Germanischer Lloyd, with offices at 25 Whitehall street, New York, has been commissioned to inspect the shipbuilding steel which German shipbuilders recently purchased in America. The Germans have purchased 9000 tons of surplus material from the shipping board, which will undoubtedly be accepted on the inspection of the American Bureau of Shipping. In addition, the Germans purchased 6000 tons from the United States Steel Products Co., which, it is understood, will be inspected by the agent of the Germanischer Lloyd. Following these purchases, the German builders have bought 14,000 tons of material through the American Steel Export Co., the purchase contract providing that the steel must be rolled in accordance with the rules and regulations of the German shipbuilding inspection society.

Herr Schmitt has represented Germanischer Lloyd in the United States for probably 15 years but his activities, very naturally, were curtailed during the war. His agency has been inactive until the recent purchases of material. The inspection work now developing upon him marks the resumption of the Germanischer Lloyd in the United States. The agency, it is reported, may not become normally active until the Germans are able to develop again their own merchant marine.

Pier for Atlantic Fruit

J. A. McNaught, general freight agent of the Atlantic Fruit Co., 61 Broadway, New York, announces that his company has just taken a lease on a newly constructed pier at the foot of Smith street, Brooklyn, N. Y. This pier is to be used entirely for the Cuban business handled by the Atlantic Fruit Co., and it is capable of receiving and storing 15,000 tons of freight. The announcement is of special significance in view of the great demand for cargo space in the West Indies trade. The new Brooklyn pier leased by the Atlantic Fruit Co., is admirably suitable for freight which has to be trucked to and from the ship. The streets leading to the pier are free of traffic, therefore, expensive waiting time is eliminated.

John L. Hubbard, one of the best known, and most expert wooden shipbuilders on the north Pacific, died recently at Portland, Oreg., where for two years he had been employed as an inspector of wooden ships for the shipping board. Mr. Hubbard was for many years connected with the old Winslow

Marine Railway & Shipbuilding Co. at Winslow, Wash., where he superintended the construction of many wooden vessels for the various fleets operating in the north Pacific.

Put Ban on Bonuses

Among the important measures passed into laws by this year's session of the Louisiana state legislature, and which affect the port of New Orleans, is one designed to prevent the payment of purchase bonuses by ship chandlers or other dealers to officers of ships in any Louisiana port. The law forbids:

1—The master or any other officer or member of the crew of any ship in Louisiana waters to accept or agree to accept, without the knowledge of the vessel's owners, any bonus, gift, commission or gratuity in connection with the purchase of supplies for, or the repair of, that vessel.

2—Any person or firm to give or offer to give to the master or any other officer or member of the crew of any ship in Louisiana waters any gratuity whatever in connection with the sale of supplies for, or in connection with the repair of, that ship.

Business men generally hail the new law with real delight as the first step in breaking up the custom of paying masters and other officers of ships a commission on supplies sold them. The new law is so drawn that it is applicable to any line of business but it is especially aimed at breaking up of a practice, in connection with foreign shipping, which makes unfair competition possible, and which is admittedly shady in its operation.

This in New Orleans has stood for years at about 5 per cent, but increasing demands by masters and mates for larger percentage on supplies bought, has converted the ship chandlers to the belief that the law is necessary. In the past sales depended frequently more on the size of the commission than on the prices of the supplies furnished. The chandlers formed themselves into an association and put their weight behind the bill, with the result that it was rushed through. The principal trouble in enforcing the measure is expected to come, from masters of foreign ships, who, being paid about half the wages of American masters, have been rigorous in their demands for heavy commissions. Foreign shipowners, too, have winked at the practice for so long that it has virtually become a part of the ship supply business all over the world.

Bellingham, Wash., has decided to form a port district and to construct a large ocean dock in addition to rebuilding two piers at Blaine.

Activities in the Marine Field

Latest News From Ships and Shipyards

Lake Docks Give Better Dispatch

BY H. C. MEADE

RECEIPTS of coal were more liberal during the month of August while the ore docks at lower lake ports are in better shape than they have been for the two preceding months. The line up at the docks is now smaller than it has been all season. At the beginning of September, the supply of prompt loading tonnage was short of the demand. The bulk of the coal was being taken by contract boats and there was not much wild capacity on the market. Under a plan worked out by vessel men and shippers, whereby wild cargoes were sent forward, tonnage for prompt loading was lined up without much delay. A general advance of 25 cents a ton was made in the price of fuel from lighters, making the price at Cleveland \$7.50 a ton and \$8.00 in Detroit and the Soo rivers. This advance was the result of increasing the wages for day labor at the mines. Some improvement was made in the car supply during the month, but more ore will have to go forward direct because of the scarcity of storage space at the lake front docks. Shipments of iron ore in August were 9,270,763 tons, an increase of 4,854,363 tons over those of the corresponding month in 1918. The season's shipments to Sept. 1 are 35,349,874 tons. The movement up to Sept. 1, 1919, was 29,604,981 tons and 39,334,264 tons for the same period in 1918. The grain movement is very light, but shipments during the latter part of the season will be heavy. The market in other lines has not changed and little chartering is being done.

On Aug. 28, the ocean-going freighter SANTA ISABEL sailed from Toledo, O., with a cargo of 492 crated automobiles destined for South America.

Wreckage of the SUPERIOR CITY, consisting of 96 hatch covers, one shattered life boat, one life raft, a refrigerator, some life preservers, the pilot house, and a master's license, was located by searching parties at Salt Point about a week after the collision with the steamer WILLIS L. KING. This is 30 miles from the scene of the accident. None of the bodies of the 29 members of the crew who lost their lives has been recovered.

In order to provide better package freight service on Lake Michigan, the Milwaukee, Chicago & Michigan City line, Milwaukee, is planning to replace the three small wooden boats, now being operated, with three modern steel ships acquired from the shipping board, and will erect a \$1,500,000 terminal at Michigan City on the plan of the Bush

terminal, New York. The smaller ships will be placed on the run between Milwaukee and west shore ports as feeders for the main line. Under an agreement with the Tristate Shipping Co., provision has been made for shipments east to Detroit, Cleveland and Buffalo.

A remarkably valuable cargo was loaded on the steamer NIAGARA of the Boland & Cornelius fleet at Buffalo a short time ago. It consisted of 4,836,000 pounds of sugar and at the rate of 22 cents per pound the value was set at \$1,063,900.

The largest cargo of ore ever taken through the Soo river was carried by the steamer W. J. FILBERT on one of her recent trips. She loaded 13,912 tons at Two Harbors. This was an increase of 48 tons over the mark made by the steamer E. W. PARGNY a few days previous.

The importance of the erection of new ore docks at the Erie harbor was discussed lately at a conference between J. M. Daugherty, president of the Crucible Steel Co., Pittsburgh, and James Thompson, representative of the Pennsylvania railroad. Plans have been completed for the development of the Pennsylvania & Ohio dock at the foot of Cascade street and for the expenditure of \$250,000 in new ore unloading machinery.

The steamers MAUCH CHUNK and WILKESBARRE, formerly owned by the Lehigh Valley Transportation Co., have been sold to the Great Lakes Transit Corp., Buffalo. The same officers and crews have been retained. The two boats each have a carrying capacity of 6500 tons. It is planned to change the names of the ships, one to be named for E. E. Loomis, president of the Lehigh Valley Railroad Co., and the other for W. J. Conners.

The following changes have been made in the masters of some of the steamers of the Wilson Transit Co., Cleveland, on account of the death of Capt. C. H. Francke, master of the steamer J. E. UPSON:

Steamer	Master	Former command
J. E. UPSON	J. B. Rinn	S. H. Robbins
S. H. ROBBINS	Olag Skuggen	W. D. Rees
W. D. REES	J. J. Phillips	Mate Capt. Thos. Wilson

Thick weather was responsible for the recent strandings of two steamers. The CUYLER ADAMS, bound for the head of Lake Superior with coal, grounded in the Lime Kiln channel, and the CONEMAUGH, downbound with package freight,

went ashore two miles above Sanilac. The CONEMAUGH was docked at Buffalo with three of her tanks leaking.

Jerome Smith, aged 66 years, for many years chief steward on the steamer JAMES A. FARRELL, flagship of the Pittsburgh Steamship Co.'s fleet, died recently at Conneaut.

The recommended draft for the Blackwell canal is now 20 feet 9 inches, and for the main river at Buffalo, 19 feet 3 inches.

The steamers CANADIAN RUNNER and CANADIAN TRADER, built at Port Arthur for salt water service, were too long to pass through the Welland canal and were placed in drydock at the Ashtabula yard of the Great Lakes Engineering works to be cut in two. The sections have recently been taken to the coast.

The steamer JAMES H. SHRIGLEY, bound from Sandusky to Quebec with coal, went ashore about 25 miles off Rochester recently and was badly damaged. All the members of the crew, including 14 men and 2 women, were rescued.

The hull of the WOLVERINE, which has been used as a drydock for 40 years at Port Huron, has been pumped out, floated and taken into Lake Huron and sunk in deep water. The steamer PABST will be given a berth in the place of the old drydock.

The steamer T. P. PHELAN, owned by the Canada Steamship lines, went ashore at Iroquois point recently and has been abandoned by her owners to the underwriters as a constructive total loss.

A. C. Pessano, chairman of the board of directors of the Great Lakes Engineering Works, purchased the company's physical properties in Detroit, Ashtabula, and Ecorse recently for the consideration of \$1,850,000. Mr. Pessano has not announced any of his plans for the future beyond the fact that the shipbuilding plants will be continued in operation.

The old steamer WALLULA, at one time a lake boat, operated by the Wilson Transit Co. and the Gilchrist Transportation Co., and taken to Bath, Me., in 1913, has been sold to a junk dealer in Bath who plans to strip her for her metal.

The steamer CLARENCE E. LABEAU has been commissioned on the "Lake Erie island fruit run," covered previously by

the steamer FRANK E. KIRBY. The LA-BEAU will leave Kelley's island daily, proceeding to Catawba, Put-in-Bay, Middle Bass island, and Detroit.

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Henry S. Connell, assistant local inspector of boilers in the Detroit office of the United States steamboat inspection service, has been appointed United States local inspector of boilers in that city, succeeding George M. Milne, who resigned to engage in other business.

* * *

Capt. F. B. Goodrow has resigned as master of the steamer W. H. TRUESDALE to take command of the steamer H. H. PORTER, built by the American Shipbuilding Co. on its own account. Captain Goodrow has been connected with Brown & Co., Buffalo, for 10 years. He

is succeeded by Capt. J. A. McDonald, mate on the steamer COL. J. M. SCHOON-MAKER of the Shenango Transportation Co., Cleveland, for the last four years.

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The steamer H. H. PORTER, the last of the four 600-footers built by the American Shipbuilding Co. on its own account to be sold, has been taken over by the Brier Hill Steamship Co. The PORTER will be operated in the ore trade and took her first cargo at Two Harbors.

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The steamer MARY A. MCGREGOR went ashore on the rocks at Magnetic Shoal, Georgian bay, recently. Fire broke out and the vessel has been abandoned as a total loss. All of the members of the crew were saved. She was built in 1889, was 179 feet keel and

32½ feet beam, and had a carrying capacity of 1000 tons.

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The Pringle Barge Line Co., Cleveland, recently purchased the steel tug CUSTODIAN, built at Baltimore for the shipping board, and has brought her to the lakes.

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The steamers WILLIS L. KING and SUPERIOR CITY collided on the night of Aug. 20, in Whitefish bay, Lake Superior, and in less than two minutes the SUPERIOR CITY sank. Only four of the 33 members of the crew were saved.

* * *

The sand boat KELLEY ISLAND was badly damaged recently when she struck a submerged obstacle on her way to Cleveland from Point Pelee. She was towed to drydock at Lorain for repairs.

Activities Along the Pacific Coast

THE first units of the Portland, Oreg., municipal terminals are completed and an era of active shipping is now anticipated. Pier No. 1 has been in service for several months and work is progressing on additional units, including a bunker for handling rock phosphate which is to move in large quantities from Idaho to Japan. The municipality's grain elevator with a capacity for 1,000,000 bushels of grain is ready for the fall and winter export movement. This is a splendid terminal, thoroughly modern in every respect. Adjacent is a large flour mill under construction. These modern terminals are bringing much new business to Portland which is conducting an energetic campaign for a share of overseas business.

* * *

Paul Schnetter, chief engineer of the 5000-ton wooden steamer SNOQUALMIE recently accomplished a remarkable feat when alone he operated the engines of the vessel for a distance of 150 miles. The vessel went to a British Columbian port for coal. When the engine room crew quit unexpectedly, Schnetter assured the captain he would run the SNOQUALMIE to Port Townsend, Wash., a distance of 150 miles. He made good and the distance was accomplished in usual speed in slightly more than 12 hours.

* * *

The old iron steamer ELIHU THOMSON, built in 1888, has made her last voyage to Alaska, as she is about to be delivered to her new Peruvian owners for service along the South American coast. The ELIHU THOMSON has had a varied career in the north Pacific for several decades. She was formerly in the Hawaiian trade but for years has operated to Nome and St. Michael.

* * *

Contracts have been signed under which the new terminal of the port of Seattle, will be used jointly by the Nippon Yusen Kaisha and Pacific Steamship Co. in handling their transpacific passenger and freight vessels. Under a preferential agreement to last five years, the Japanese company will have the

west side of the new pier and the American line the east side where the new shipping board passenger vessels will berth. The port is now engaged in constructing a 500-foot shed on the west side of the terminal for accommodating the Nippon Yusen Kaisha. Pier B has a length of 2540 feet and breadth of 367 feet. It is solidly filled and is separated from Pier A by a slip 350 feet wide.

* * *

The shipping board liner WEST JESTER was recently docked at the Todd Dry Docks Inc., plant, Seattle, for survey but was found to have been undamaged by going aground on a spit at the entrance to Yokohama harbor. Shortly after this mishap, the WEST JESTER assisted in the rescue of the Japanese steamer KIYO MARU which was threatened by fire.

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Effective Aug. 1, the harbor commissioners of Vancouver, B. C., levied a tax of 5 cents per ton on all cargo inbound or outbound. These rates are in addition to the wharfage charges and include all articles landed or shipped to Vancouver.

* * *

Value of exports from the Columbia river for the first six months of 1920 totaled \$21,191,341 while in the same period imports aggregated \$4,993,852. The principal exports were: Wheat, \$3,407,502; flour, \$3,737,451; cotton, \$6,492,922; lumber, \$3,611,459.

* * *

Within six months, the first unit of the Tacoma, Wash., terminal improvements will be in operation. This is an open pier, 840 feet in length and 166 feet in width. It will be served by ample railroad trackage and in every respect is to be thoroughly modern.

* * *

North Pacific shipping men are greatly interested in the disposition of the dozen German sailing ships which have been interned in Mexican Pacific waters for six years. It is understood that this fleet is to be delivered in Europe but according to present plans they

are to be towed to Puget sound for docking and overhauling and then are to load foodstuffs for Europe where they are to be turned over to the Allies.

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According to announcement by S. Hashimoto, manager of the Osaka Shosen Kaisha with headquarters at Tacoma, Wash., no change will be made in the company's present schedule because of the Jones bill. Neither will the terminal of the line be transferred to Vancouver, B. C. The company has just added two new freight and passenger steamers to its Puget sound fleet, the ARIZONA MARU and ALABAMA MARU, and will continue to maintain a fortnightly service out of Tacoma and Seattle.

* * *

Henry G. Seaborn, of the Skinner & Eddy Corp., Seattle, has just equipped his sailing schooner CAMANO with a power launch which is to be carried on deck. The purpose of the small tug is to tow the CAMANO through the calm areas of the wide ocean enabling her to make much better time. While this is largely an experiment, it is believed to be entirely practicable. The CAMANO is a 4-mast, topsail schooner with a capacity for 900,000 feet of lumber.

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Transpacific lines have announced an increase in passenger rates of 20 per cent effective Sept. 15. Under the new schedule, first class passengers will pay the following from Seattle: To Yokohama \$300; to Kobe, \$310; to Nagasaki, \$334; to Shanghai, \$345; to Hongkong, \$375; to Manila, \$375. Second class passage ranges from \$175 to \$218.

* * *

British Columbian yards are making repairs to the British freighter EURYDAMAS which was injured in collision at San Francisco with the Hawaiian liner MANOA and to the Swedish motorship PACIFIC which ran aground in a fog near Victoria, B. C., and damaged several plates.

* * *

Norwegian motor schooner BLAATIND, launched at Seattle a year ago but

which has never been at sea, has been bought at marshal's sale for \$100,000 by the Scandinavian-American of Seattle, the heaviest creditor. The BLAATIND has been in financial difficulties ever since she was built and the claims have prevented her going into active service. Her troubles resulted in the cancellation of an attractive charter. Capt. E. Sandberg, who came from Norway a year ago to command the vessel, has just returned home after being master of a vessel that for 12 months has remained idle in port.

* * *

Following the lead of the railroads, the coastwise steamship companies obtained permission to increase passenger fares 20 per cent and freight rates 25 per cent effective Sept. 1. Increased wages and operating costs are given as the cause of the higher tariffs.

* * *

The steamships ROBIN ADAIR and ROBIN HOOP, recently sold by the Robin line, a subsidiary of the Skinner & Eddy Corp., Seattle, were purchased by the United States Steel Corp., at a figure said to be \$3,000,000. This is said to figure out on a basis of \$144.23 per

deadweight ton, the vessels being of the 10,400-ton type, built at Seattle. It is understood that the present owners will retain the other two ships of this type, ROBIN GOODFELLOW and ROBIN GRAY. The former is now enroute from British Columbia to Rio de Janeiro with a cargo of coal.

* * *

During the recent heavy run of salmon in the Fraser river, B. C., Japanese fishermen are said to have earned an average of \$100 per day for more than a month.

* * *

With approximately 5,000,000 feet of lumber, one of the largest cargoes ever shipped from the Columbia river, the Japanese steamship HAKUSHIKA MARU sailed from Portland, Oreg., for Shanghai. The big freighter drew 29½ feet of water and safely negotiated the Columbia river 110 miles to the Pacific.

* * *

A. M. Gillespie, Inc., Seattle, has been appointed as north Pacific agent for the Holland-American line which is shortly to inaugurate a monthly service between Puget sound and north Europe. This line will offer a considerable amount of

refrigerator space which has long been desired for the shipment of fish, fruit and other perishables. The same firm will also represent the Pacific-Caribbean-Gulf Steamship line which is to place four steamers of 5000 tons each on the route between New Orleans and the north Pacific. This service has long been desired as Puget sound has not heretofore had direct connection with gulf ports.

* * *

Assigned to the sea service bureau, the 8800-ton steel steamer, HOLLYWOOD, built at San Pedro, Cal., is about ready to take the place of the Ferris wooden type steamer BROOKDALE. The HOLLYWOOD will carry 146 apprentices and 46 crew. She will operate on the triangular route between Seattle, the Hawaiian islands and San Francisco.

* * *

The port of Seattle has adopted resolutions requesting the department of commerce to compile statistics of tonnage as well as of value in reports of imports and exports. The point is taken that in the present day of high prices comparisons with before the war periods are unfair when value only is given.

Activities Along the Gulf Coast

NEW ORLEANS broke her own record for arrivals and clearances during the last week in August, when 126 ships came in and cleared. Sixty-four of these were arrivals and 62 clearances. The largest previous total had been 100. The bulk of the exports went out in American bottoms.

* * *

The September term of the shipping board's free marine engineer school at New Orleans opened Sept. 3, in Stanley Thomas Hall, Tulane University, with Prof. James M. Roberts in charge. The recruiting service for the shipping board has placed all the graduates of this school in positions and has nearly 100 applications for men from it on file.

* * *

I. D. Rocap, district director for the division of supplies and sales, United States shipping board, with offices at New Orleans, has resigned to enter private business. Members of his staff gave him a banquet when he resigned.

* * *

American steamer MOPANG, Port Arthur, Tex., Aug. 2, to Liverpool, via Norfolk, was disabled at sea off the Irish coast, Aug. 30, and rescued by tugs from Liverpool. MOPANG's engines gave out.

* * *

Col. Henry Newcomer has been named division engineer of the corps of engineers, gulf division, U. S. A., with headquarters in New Orleans, vice Col. Herbert Deakyne, transferred to the Pacific coast.

* * *

Major Dent, of the United States army engineering corps, in charge of

inland waterways in the lower Mississippi valley, has begun an investigation of possible and practicable ship channels, other than the Mississippi river, from New Orleans to the Gulf of Mexico. The last congress authorized this investigation, with the idea of determining the feasibility of an auxiliary channel which would be free from the eccentricities of the great silt-bearing river and its ever-changing delta, "an insurance policy for Mississippi valley commerce," as Major Dent called it. The first survey is being made through Lakes Pontchartrain and Borgne to the gulf via Mississippi sound.

* * *

Steamer MINOOKA, operated by the Lykes Bros. Steamship Co., late in August completed a round trip to Rotterdam from New Orleans in the record time of 44 days. She took full cargo out from the Louisiana port, but came back in ballast. Steamers CODY and WESTBROOK, recently launched in Philadelphia, are to be added to the Lykes fleet.

* * *

Pauline street wharf, at New Orleans, is being repaired at a cost of \$24,000, and contract for the work has been awarded to Alexander & Juliani.

* * *

Fifteen sailing vessels of large size are tied up in Orange, and an equal number in Beaumont and Galveston, Tex., waiting the passing of the hurricane season. They will remain in these ports until near the end of September. About 20 others are similarly tied up in Mobile, Ala., Pensacola, Fla., and New Orleans.

* * *

Three reels of motion pictures have been made by the board of commission-

ers of the port of New Orleans, covering port activities, and the municipally owned and operated grain elevators and cotton compress and warehouse, for exhibition through the cities of the south and west, to demonstrate the amount of shipping handled through New Orleans and to advertise the port to exporters and manufacturers.

* * *

Steamer HIBUREAS, first of five modern freight and passenger vessels ordered by the Cuyamel Fruit Co., New Orleans, arrived in the Louisiana port, on her maiden voyage from Bluefields, Nicaragua, Aug. 31. She was launched from the Standard Yards, Shooter's Island, New York, June 5, this year, and completed rapidly. The second vessel of the fleet, NICARAGUA, left the Standard yards early in September to join HIBUREAS in maintaining a weekly schedule between New Orleans and Nicaraguan ports. The two steamers are 1750-ton boats, and the remaining three are 4000 tons each. The first of the three large boats will be launched late in September, and will be christened OLANCHO. The smaller vessels cost \$520,000 each and the larger \$700,000. They will fly the Honduran flag, and the entire fleet will be devoted to trade between New Orleans and the ports of Nicaragua and Honduras. Sam Zemurray is president of the Cuyamel Fruit Co.

* * *

Increased passenger fares on the railroads have resulted in a large increase in water travel locally out of New Orleans, with the result that five passenger and freight steamers and large power boats are now operating from New Orleans on Lake Pontchartrain. These are the steamers MANDEVILLE,

MANATEE, and SISTER, and the power boats VICTOR and SWEETHEART. At this time last year only one boat, the MANDEVILLE, was in operation in this service. All are carrying automobiles.

* * *

The British steamship PREUSSEN, operated by Norton, Lilly & Co., cleared for Avonmouth, England, late in August, with the largest cargo of wheat ever shipped from a southern port. It consisted of 406,000 bushels, or 10,875 tons. Capt. H. N. Davies is master of PREUSSEN.

* * *

Ending of the Morgan line strike in New York has been of the greatest aid to New Orleans and other gulf ports, especially to the automobile trade, which has been getting virtually all its automobiles, trucks and tractors by water, owing to better service and 20 per cent lower freight rates.

* * *

UBERABA, loaded with 40,000 sacks of coffee, reached New Orleans late in August, from Rio de Janeiro, the first of the fleet the Brazilian Lloyd's Steamship Co., is establishing between the Mississippi river port and the South American coffee mill. She is also the first passenger carrier to come direct from a Brazilian port since the war. UFRABA was forced to tie up in the river for two days because no berth

was available. The steamer, which is of 6000 tons, will go from New Orleans to New York, for which port she has full cargo, and thence return to Rio, completing the triangular course which will be her regular run. Jules M. Wogan, 239 Chartres street, New Orleans, is agent for the Brazilian Lloyd's.

* * *

With the abandonment of the \$20,000,000 army supply base at New Orleans as a base for army transport service, and the report from Washington that the buildings will be turned over to the shipping board, the commissioners of the port of New Orleans are now endeavoring to get at least one unit for use as a municipally operated general commodity warehouse.

* * *

Trade routes formerly served by the North German Lloyd Steamship Co., between New Orleans and Bremen and Hamburg will be served henceforward by the J. H. W. Steele Co., New Orleans, according to announcement by Neal M. Leach, vice president of the company, late in August. Passengers, as well as freight, will be carried direct between German ports and the Gulf of Mexico.

* * *

W. P. Levis, traffic manager of the Mallory Steamship Co., while in Mobile, Ala., recently, announced he would recommend a continuance of

the coastwise service of this company between Mobile and New York, provided satisfactory terminal facilities are provided at Mobile, after Feb. 1, when the Mallory line will have to give up the Southern railway pier it is now using. The matter is under consideration by officials of the Mallory line and of the Southern railway.

* * *

B. M. Flippin, traffic director of the J. H. W. Steele Steamship Co., New Orleans, has returned from a business trip to Europe.

* * *

Chilean capital is preparing to establish a steamship line between ports of that country and New Orleans.

* * *

Alden McLellan, 84, one of the founders of the McLellan Dry Dock Co., New Orleans, died in that city, Aug. 26.

* * *

For the first time in a quarter of a century a steamboat will make a through trip from Cincinnati to New Orleans, 1500 miles, with a cargo of freight and passengers, late in September, or early in October, according to announcement by the Ohio city's chamber of commerce. The steamer used will be the QUEEN CITY now having her hull rebuilt on the Mound City Co.'s marine ways at St. Louis.

Late News From Atlantic Seaboard

SUBMARINE S-21, built by the Electric Boat Co., at the Fore River Shipbuilding Co., Quincy, Mass., was launched on Aug. 17. Mrs. G. M. Baxter, wife of Lieut. Commander T. J. Baxter, assistant inspector of machinery, was sponsor.

* * *

The Milford Shipbuilding Corp., Milford, Mass., has recently purchased 22 acres of land on the Housatonic river where it will erect a plant. The output will be light draft boats, for coastwise trade.

* * *

The Kelley, Spear Co., Bath, Me., has recently obtained contracts for building two ocean coal barges of 3000-ton deadweight capacity each. These barges are to be built for the Staples Transportation Co., Fall River, Mass.

* * *

Patterson, Wyld & Co., Boston, representatives of the Barber Steamship Lines, Inc., announce that the company will operate steamers from Boston to the Far East.

* * *

The Massachusetts state commission on foreign and domestic commerce has moved its offices from 95 Mill street, Boston, to rooms 6 and 7 at the state house, Boston.

* * *

The United States shipping board steamer AURORA was recently sold to the Belge Royal Navigation Co. The AURORA is of 1469 tons.

* * *

It has recently been announced that the Northern Transportation Co., will

close its Boston office. Maxwell Harris, who has been in charge of the Boston office will engage in the coal barge chartering business.

* * *

Clay & Co., steamship agents, Boston, have been appointed New England representatives for the Five Continent Steamship Co. They have also been appointed New England soliciting agents for the S. O. Stray Steamship Co.

* * *

Crowell & Thurlow, Boston, have recently awarded a contract to the Bath Iron Works, Bath, Me., for a new cargo carrier. The new vessel will be a sister ship of the one now under construction and will be 6253 gross tons, 395 feet long and 55 feet beam.

* * *

Arrangements have recently been made by the North Atlantic & Western Steamship Co., with the Dollar Steamship Co., Boston, to have Manila made a port of call in the Far East service.

* * *

The Warren Maritime Co., has recently been established at 19 Tremont street, Boston. The concern will operate sailing vessels in the coastwise and overseas trade.

* * *

The steamer LAKE STERLING, recently purchased from the United States shipping board and which has been in operation for the United Fruit Co., between Boston and Cuban ports, will shortly be turned over to her owners, the Richmond-New York Steamship Co. The

LAKE STERLING is of 1948 gross tons and was built in 1918.

* * *

Word has recently been received of the loss of the Boston owned schooner ITASCA through collision with a submarine off Brettons Reef lightship. The ITASCA was well known along the New England coast. She was built at Cherryfield, Me., in 1879, was 72 feet long and 24 feet beam.

* * *

Clay & Co., Boston, have recently been appointed New England agents for the Bull Insular line operating from New York to Porto Rico, San Domingo, West Africa, Constantinople and Black sea ports.

* * *

The passenger steamer GOVERNOR COBB for many years on the New York, Massachusetts and Maine summer service of the Eastern Steamship Lines out of the port of Boston, was sold recently to the Peninsula & Occidental Steamship Co.

* * *

A new service is to be inaugurated by the North Atlantic & Western Steamship Co., between Boston and Liverpool and Glasgow, two vessels having been allocated for this trade by the shipping board.

* * *

The 4-masted schooner ELIZABETH FREEMAN was recently launched at the yards of the Atlantic Coast Co., at Thomaston, Me., for the Boston firm of Crowell & Thurlow. The new schooner is 210 feet long, with deadweight capacity of 2400 tons.

Practical Ideas for the Engineer

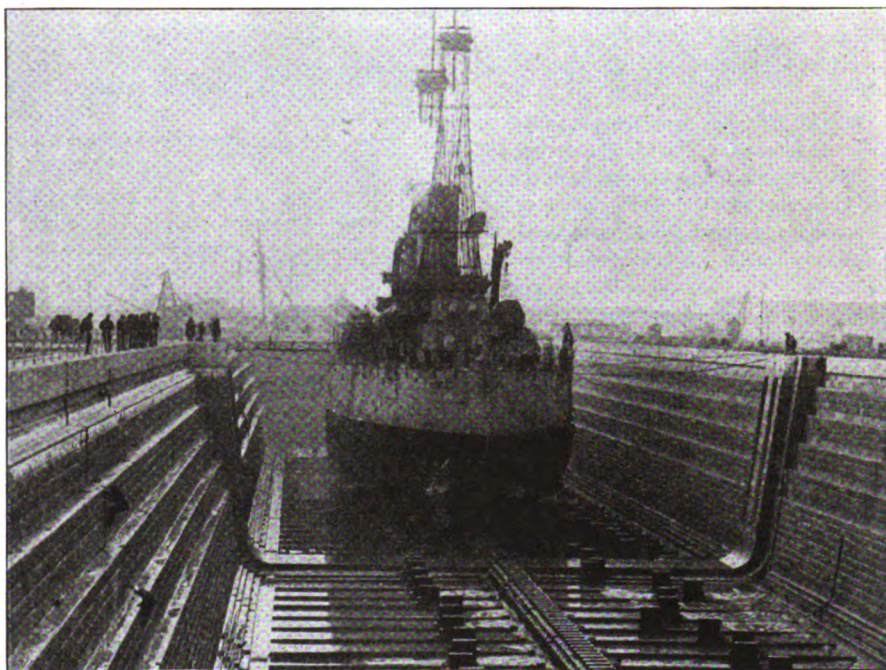
Details of Construction of Large Drydock at Boston—New American Design of Diesel Engine

BY H. R. SIMONDS

BOSTON harbor's new drydock is the largest in this country. It has been under construction ever since 1912, when it was started by a legislative act of the state of Massachusetts. The construction was handled by the Halbrook, Cabot & Rollins Corp., Boston, under the supervision of Frank W. Hodgdon of the state department of waterways. Its construction cost has been something over \$3,000,000.

The dock opens directly on to the main ship channel of Boston harbor and means the beginning of a new development in the South Boston district. Close to it lie the new army supply base and the big naval loading dock. The drydock itself has been taken over since its completion by the government for naval purposes.

Although the dock follows closely the lines of similar docks throughout this country, its large proportions give it an unusual interest. It is 1200 feet long and has a width of 149 feet between copings of the side walls. The top of the dock wall is 16 feet above mean low water and the sill at the entrance is 35 feet below mean low water. A maximum length of ship which can be placed in the dock is 1140 feet and in order to economically handle shorter vessels, an intermediate



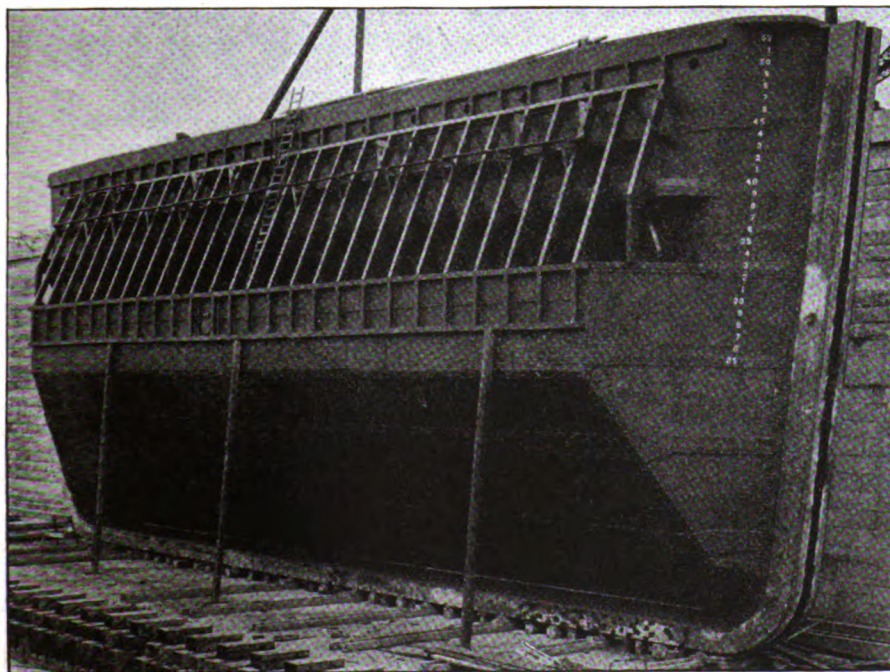
THE FIRST VESSEL TO ENTER THE NEW DOCK WAS THE BATTLESHIP VIRGINIA

sill has been constructed as part of the dock structure, permitting a division to be made in the length of the dock used. The inner section is 668 feet and the outer section 520 feet long.

The method of building the dock has some features of interest. Two projec-

tions of land were built out from shore about 400 feet apart by means of hydraulic dredges. Then a cofferdam structure was built between the two outer ends, after which the water in the enclosure was pumped out. Dry excavation was then carried on to bed-rock and the walls of the new dock were built up on this solid foundation. The walls are mass concrete with a lining of granite on the inside. The concrete mixture used was approximately 1-2½-4½ in the massive sections and 1-3-6 near the edges and top. To provide for expansion, the walls were built in sections approximately 60 feet long, each section being poured and painted with a nonadhesive paint before the next section was started. The joints are perfectly straight, flat surfaces extending through the wall, except that on the outer side indentation have been left to take concrete slabs which, under the pressure of the water tend to prevent leaking.

As the dock when filled contains between 50,000,000 and 60,000,000 gallons of water, it is evident that a large pumping plant is necessary. This plant consists of three main units together with smaller pumps for auxiliary purposes. The main pumps have a 54-inch suction and discharge and are each operated by a 1250-horsepower, con-



A 1600-TON STEEL FLOATING CAISSON IS USED TO CLOSE THE ENTRANCE

stant-speed, electric motor made by the General Electric Co. The pumps were made by the Worthington Pump & Machinery Corp. The motors of each unit are located on the main floor of the pump house 55 feet above the dock floor. They revolve at 240 revolutions a minute and are of the vertical type. Eight-inch vertical shafts, supported by thrust bearings at the top of the motors extend some 50 feet downward to carry the pump runners. Each pump has a guaranteed capacity of 1000 gallons per minute.

One of the features of particular interest in connection with the large dock is the caisson which is used in closing the entrance to the dock. This caisson is a 1600-ton vessel in itself and was built very much as any steel vessel except that its lines of course are not designed for speed. It is provided with electric pumps which receive their power through a cable from the dock. These pumps make it possible for the boat to be raised or lowered as desired and in this way it is floated to one side for the entrance of the boat and then into position over the sill and lowered in place to permit the dock to be pumped out. It is symmetrical about both axes so that it may be used with either side against the water pressure.

Structurally, the caisson consists of steel girders with an outside shell of riveted steel plate. It is ballasted with concrete with space left for the variable water ballast, which is furnished by the pumps. This caisson, which is the largest caisson ever built in this country and probably the largest in the world, was constructed by the Bethlehem Steel Bridge Corp. after the design of E. N. Kinney of the Massachusetts state department of waterways. In the first test of the dock, the entire equipment worked satisfactorily. With the boat in place on the blocks and the dock completely emptied of water, no perceptible leak could be detected either at the caisson joints or the joints in the walls.

Test of Diesel Engine

An improved diesel engine for the bulk freighters of the Ore Steamship Co., running between Baltimore and Cuba has been found successful, according to a statement made by Charles M. Schwab, chairman of the Bethlehem Steel Corp. The engine was designed by Arthur West of the Bethlehem Shipbuilding Corp., Ltd., and has been tested out on the CUBORE, a 11,669-ton bulk freight carrier. With the return of this ship from a trip to Cuba, Mr. Schwab declared she had consumed only one-third as much fuel as an oil-fired ship of similar type.

"It is a great pleasure for me to

announce that the Bethlehem Steel Corp., and the Bethlehem Shipbuilding Corp., Ltd., have perfected a new 2-cycle, fuel-saving marine diesel engine especially designed for American operating conditions and adapted to land use as well as to cargo vessels of any size," said Mr. Schwab. "In the science and practice of marine engineering, this new engine represents a far greater advance over the oil-burning steamship than the latter is over the coal-fired steamship. It is also regarded as a signal triumph for American engineering skill in a field hitherto dominated entirely by Europeans."

At the time Mr. Schwab was making this statement, the Transatlantic Italia was docking one of the large

in developing the American merchant marine, we are naturally proud of this engine.

"Bethlehem, which was privileged to play so active a part in the world war, feels the greatest pride in this engine as a contribution to the peaceful progress of civilization.

"The development of the new Bethlehem fuel-saving diesel engine represents two distinct phases of advance in marine engineering:

"1.—For the first time an internal combustion, heavy oil engine for either marine or land uses has been perfected which is not only designed and built by Americans, but is built especially for Americans, and is adapted to American operating conditions.

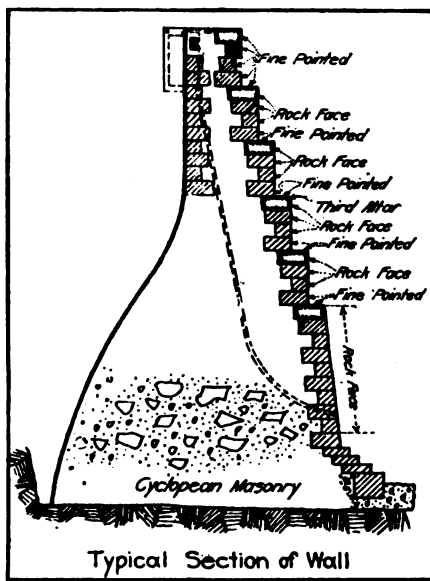
"2.—For the first time, a 2-cycle internal combustion heavy oil engine has been perfected which produces the same horsepower as a 4-cycle engine practically twice its size, and is at the same time adapted to large cargo ships while saving two-thirds in fuel cost alone, as compared with steam-driven, oil-fired vessels.

"Neither of these developments is theoretically a new idea. For years, Europeans have successfully operated large ships with diesel engines. The achievement of Arthur West, the Bethlehem designer, who is at the head of our power department, is in adapting the 2-cycle engine to American operation and in its perfection for practical use in cargo vessels of any size.

"The success of this engine has already been demonstrated in two ways. It was installed and operated for 10 months as part of the power plant of the Bethlehem Steel Corp. at Bethlehem, Pa. It was then installed in our new ore-carrying vessel, the CUBORE, which has just completed on regular schedule time, its first voyage to Cuba and return.

"The operation of the engine at the Bethlehem plant was so successful that we are building another one to take its place as part of the auxiliary power plant for the steel mills. Its operation on the CUBORE not only demonstrated its practicability but its remarkable economy. The CUBORE made the voyage from Sparrows Point, Md., to Cuba and back without stopping her engines except to come into port and consumed one-third of the amount of fuel oil ordinarily used by her sister vessels fitted with oil burning steam machinery of the usual type when running on this same voyage and at a much greater rate of economy than has been achieved by any other diesel engine operated ship of which we have any record.

"We also have in service ships with other types of engines, affording a direct comparison."



WALL SECTION SHOWING CONCRETE AND GRANITE CONSTRUCTION

est motorships ever put in at the harbor of New York. The Italian boat is one of six which this firm has or is building for its service. The Italian ship has two diesel engines of the 4-cycle type developing over 2000 horsepower. They consume about 10 tons of oil a day to drive the ship at a speed of 11 knots.

"At a time when the American people have expressed through congress their desire that the American merchant marine, built up during the war at a cost of \$3,000,000,000, shall remain on the seas," continued Mr. Schwab, "and shall expand to take care of the commerce of the nation, it is particularly gratifying to be able to say that American inventive skill has found the means of solving one of the biggest problems that today faces the owner and operator of American ships—the problem of reducing operating costs.

"As a commercial accomplishment calculated to be of great value especially

Equipment Used Afloat, Ashore

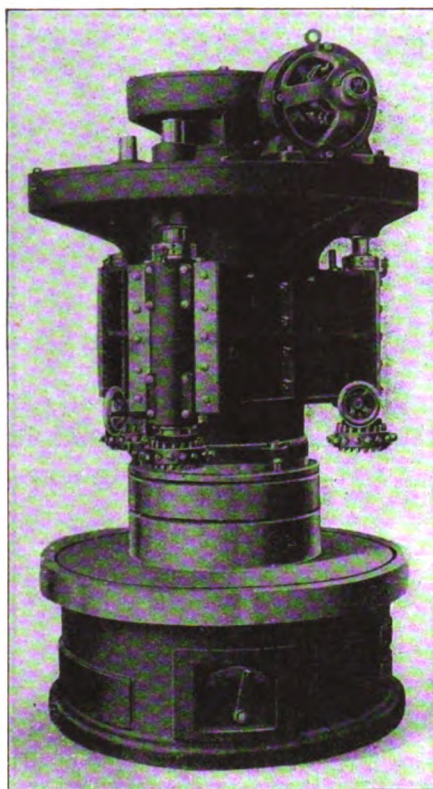
Portable Slotting Machine—Continuous Miller—Motors on Floating Dock

ONE of the most recent machine tools placed on the market is an improved type of portable slotting machine manufactured by the Newton Machine Tool Works, Inc., Philadelphia. This machine has a maximum stroke of 76 inches, a cross feed to the tool slide of 40 inches and an in-and-out feed to the tool slide of 6 inches. The tool slide has a vertical adjustment of 24 inches and the upright on the sub-base has a motor cross feed of 84 inches. Counterweights running in guides inside of the upright are provided to counterbalance the saddle.

Feed to the upright is accomplished by a separate motor through spiral and bevel gears and a stationary screw, the feeds being automatically intermittent through a friction clutch. A hand lever and friction clutch controls the power rapid traverse of the upright in either direction. The saddle, which is supplied with tapered shoes to compensate for wear, is operated by a screw with a 1-piece bronze nut. Traverse is controlled by a coarse-pitch, large diameter screw fitted with roller thrust bearings, both top and bottom, to insure operation in tension. Drive to the screw is by a reversible motor through spur and bevel gears, the screw being carried in a tension bearing with thrust collars running in oil. To prevent jamming, the screw is supplied with a safety clutch which is disengaged by the saddle at the top or bottom.

Operating dogs for the reverse are mounted on the side of the machine with a latch so that they can be easily changed while the machine is in operation. These operating dogs have no connection with the feed. The tool apron has a swivel for relief and is arranged to swivel through a full circle for making angular cuts. The tool slide in place of having bolted straps on the side for the square gibs is integral with the slide itself, bronze taper shoes being employed to take up the play. All gears on the machine are completely inclosed. Power is ordinarily supplied by a 15-horsepower reversing planer type motor while the feed to the upright is furnished by 7½-horsepower motor.

Ten-ton steel containers, which can be handled on motor trucks and flats to the warehouses, loaded and transported back to the barges, have been added



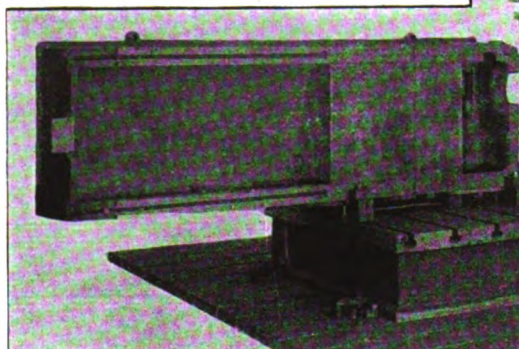
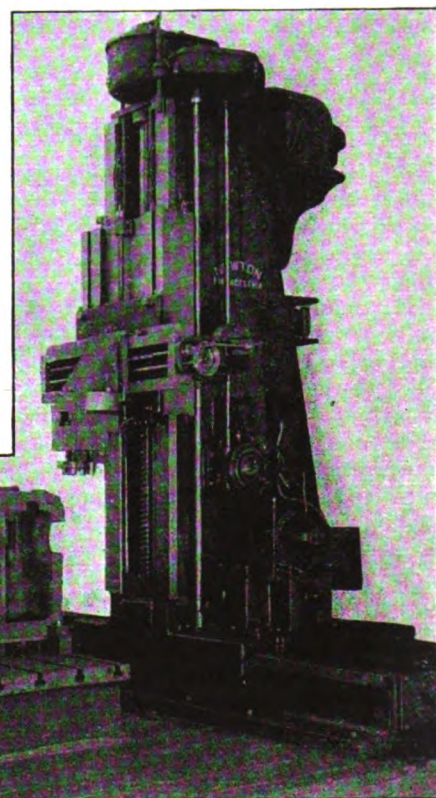
VERTICAL MULTIPLE SPINDLE MILLING MACHINE OF CONTINUOUS OPERATION

to the equipment of the Warrior River-New Orleans government-operated barge lines, and are aiding materially in speeding up schedules and freight handling on this line. Some of the containers are shipped, packed, from as far away as St. Louis, on the Mississippi river barge line, and transferred by hoists, at New Orleans, to the Alabama barge line, which distributes their contents to Mobile, Tuscaloosa, Demopolis and Birmingham, Ala. Through freight connections from these points can carry the containers still further, to Atlanta, Ga., Chattanooga, Tenn., and other interior points.

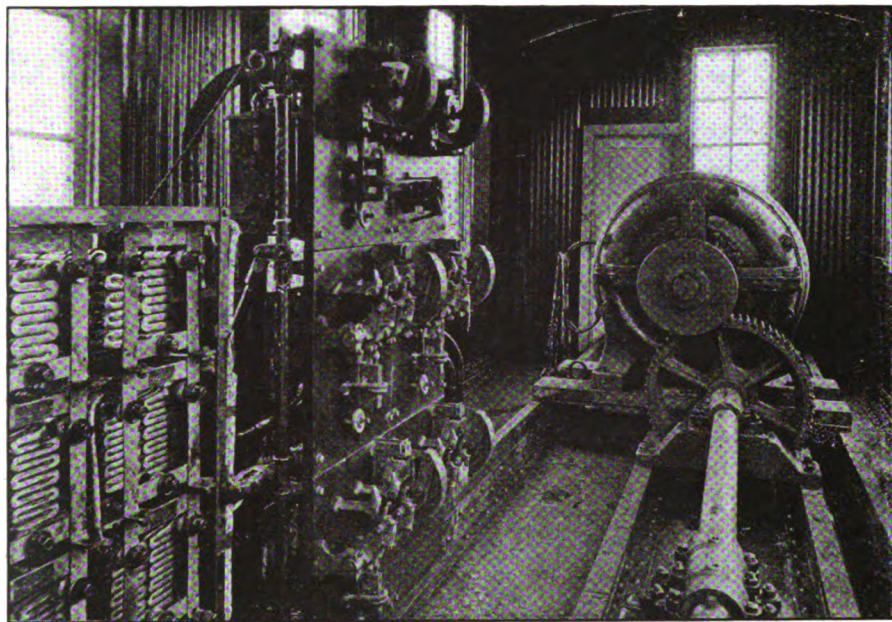
Designs Continuous Miller for Heavy Work

For production milling on duplicate parts, a simple but rigidly constructed multiple spindle, continuous, vertical milling machine is being built by the Betts Machine Co., Rochester, N. Y. The machine, as shown in the accompanying illustration, is provided with three spindles, but additional spindles can be added to meet any requirements of work. Each of the spindles, which are steel forgings driven through long splines and spur gears, carries a milling cutter and may be adjusted vertically by hand. This with a 4-spindle machine may be fitted with two roughing cutters and two finishing cutters to complete the operation in one cycle. Power for driving the machine is furnished by either a pulley or an individual electric motor at the top of the machine.

The table has a flat bearing on the bed, a split tapered bushing providing for taking up wear in the bearing on which the table revolves about the column. A large internal gear drives the table, all bearings bronze bushed and all gears running in an oil bath. Four rates of continuous feed are obtained through sliding steel gears,



RECENTLY DESIGNED PORTABLE SLOTTING MACHINE OF IMPROVED TYPE



ALTERNATING CURRENT MOTOR DRIVING CENTRIFUGAL PUMPS THROUGH LINE SHAFTS. CONTROL PANEL AND RESISTANCE GRIDS ARE SHOWN AT THE LEFT

none of which is in mesh excepting those that are actually transmitting power.

To prevent losing time in chucking the work as the pieces are changed while the holding fixture is passing from one cutter to the next, the fixtures are carried on the table which revolves continuously. One of these machines will take care of as much work as can be handled conveniently by two men, and depending upon the nature of the work, it is said, the production capacity is three times as great as that of a single spindle machine.

High Voltage Motors for Centrifugal Pumps

An interesting feature of the new 10,000-ton floating dock of the W. & A. Fletcher Co., Hoboken, N. J., is the use of 2400-volt motors for operating the pumps.

Heretofore, motors built for 440 volts or less have been used on docks; and where high-voltage current is supplied to the shipyard by a central station, it has been customary to reduce the voltage by transformers before the power is distributed to the motors and other electrical equipment. But in the case of the Fletcher dock, a practice that is becoming general in other industries has been followed; namely, to utilize the high-voltage current without voltage reduction for large motors and thus reduce the cost of the transformer installation.

The Fletcher dock, which consists of two sections, one of four pontoons and the other of five, is equipped with eighteen 12-inch centrifugal pumps,

each with a rated capacity of 2200 gallons per minute and a maximum speed of 500 revolutions per minute. These pumps are arranged in four groups, one in each wing of the two sections. Each group is driven through a lineshaft by a motor. A 200-horsepower motor drives five pumps in each wing of the large sections, and a 125-horsepower motor drives four pumps in each wing of the smaller section. The motors, which are of the Westinghouse variable-speed wound-rotor type, are located in houses on the wings and are geared to the lineshafts.

The control of these motors is housed in a small brick building on the pier at the end of the dock. Mounted on a panel are four small master controllers, one for each motor. An operator stationed in the control building can start, stop, slow down or speed up any or all of the pumps as the dockmaster directs. The master controllers do not control the motors directly, but control the opening and

closing of magnet switches, which are mounted on panels in each motor house and make the actual motor connections. Hence the master controllers do not handle the heavy, high-voltage motor current, but only small low-voltage auxiliary currents for operating the switches. The wiring of the control circuits is, therefore, inexpensive and the master controllers are safe to handle.

Mounted on the same panel with the master controllers are four ammeters, one for each motor, which gives the operator full information as to the performance of the motors and enable him to tell at a glance if all are operating properly.

Late Marine Patents

Copies of any one of these patents can be obtained by forwarding 25 cents in stamps to Siggers & Siggers, National Union Insurance building, Washington, and mentioning THE MARINE REVIEW.

1339850—Ship steering apparatus—Peter A. Johnson, Portland, Oreg., assignor to Johnson-Fullers Marine Construction Co., Portland, Oreg.
1339663—Fender for ship.—Y. Nakabayashi, deceased, Seattle, by K. Saburo Nakabayashi, administrator, Seattle.

1340920—Means to propel boats or the like, A. L. P. Talbot, Montreal, Que.

1340924—Towing device for use with ships, C. V. U. borne, Westminster, London, England.

1340976—Hand operated power mechanism for small boats, August Pann, Brooklyn, N. Y.

1341289—Aerial cable guide, T. C. Smith, East Orange, N. J., assignor to American Telephone & Telegraph Co., New York.

1341578—Towing mines, John P. Nordell, New York.

1342797—System of marine propulsion, Angelo Conti, Washington.

1342828—Extensible mast, Benjamin F. Seymour, Denver, assignor to the International Army & Navy Equipment Co., Denver.

1342847—Knockdown mast, George F. Gray, Washington.

1343094—Accommodation ladder for marine vessels, E. J. Sims, Brooklyn, N. Y.

1343165—Submarine radio system, Peter E. Stogoff, New York.

1343176—Compressor mold for forming concrete hulls, E. A. Larsen, Larkspur, Cal.

1345416—Boat and trunk combined, E. R. Thomas, St. Paul.

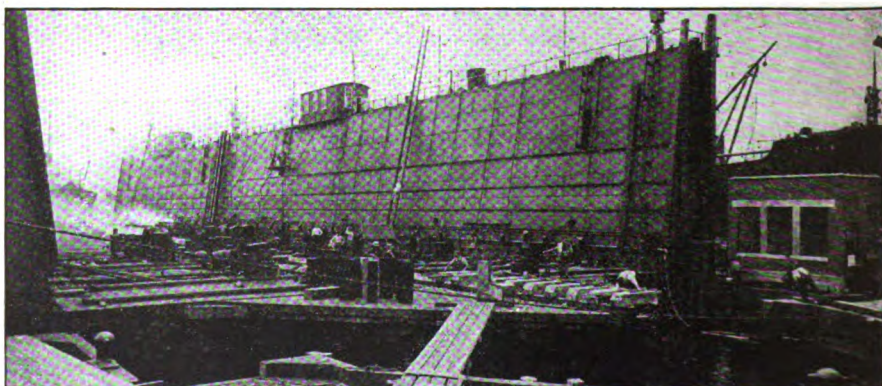
1345610—Vessel, Alexander McDougall, Duluth.

1345821—Davit, S. E. Aaron, Boston.

1345836—Submarine, William H. Collier, Yatesville, Ga.

1345860—Bow-facing oar, Ferdinand Kohl, Plymouth, Wis.

1345641—Marine turbine, Henry F. Schmidt.



NEW 10,000-TON FLOATING DOCK OF W. & A. FLETCHER CO., HOBOKEN, N. J., EQUIPPED WITH HIGH VOLTAGE MOTORS FOR PUMP OPERATION

Pittsburgh, assignor to Westinghouse Electric & Mfg. Co.

1345757—Propulsion of submarine vessel, William L. R. Emmet, Schenectady, N. Y., assignor to General Electric Co.

1345678—Mounting for turbine buckets, A. T. Kasley, Philadelphia, assignor to Westinghouse Electric & Mfg. Co.

1343392—Ship construction, Robert F. Hartung, Chicago.

1343491—Ship, John Arbuthnot, Victoria, B. C., assignor to Percy N. Furber, New York.

1343630—Means for the automatic equilibrium of floating cranes, V. Locarni, Genoa, Italy, assignor to Societa Anonima Italiana, Gio. Ansaldo & Co., Genoa.

1343664—Compasses, C. F. Dieckmann, Chicago, assignor to Eugene Dietzgen Co., factory, Chicago, a corporation of Delaware.

1334665—Marine turbine installation, Raymond N. Ehart, Edgewood Park, Pa., assignor to Westinghouse Electric & Mfg. Co.

1343911—Marine fire indicating system, Walter H. Freygang, Weehawken, Walter Kidde, Montclair, and B. G. Worth, West Orange, N. J., assignors to Walter Kidde & Co., a corporation of New Jersey.

1343969—Marine mine, Frederick W. Hampton, Indianapolis.

1344074—Submarine detecting and destroying apparatus, W. E. Williams, Chicago.

1344151—Ship protector, Peter Sangoff, Quincy, Mass.

1344459—Coaling barge, Frederick A. Sweet, Salt Lake City, Utah, and George G. Jamieson, Oakland, Cal.

1344481—Coaling device, Stuart H. Buchanon, Beaumont, Tex.

1344505—Apparatus for raising ships, William F. Gumme, New York, assignor of one-fourth to Leopold Segal, New York.

1344619—Drift bar, Frederick H. Colvin, Duluth.

1344724—Mechanically actuated horn for bicycles, boats, etc., George J. Seiss, Toledo.

1344754—Boat supporting and launching apparatus for ships, Robert G. Clark, Brooklyn, N. Y.

1344903—Apparatus for sea navigation, S. Kolbansky, Lyons, France.

1345013—Reinforced concrete ship mold, G. E. Kastengren, Seattle, assignor to Concrete Craft Corp., Seattle.

1345213—Construction of ships, G. V. Montarull, Rome, Italy.

1345289—Navigator's instruments, R. W. Turcker, Weston, Mass.

1345326—Traction boat, J. B. MacDonald, Oakland, Cal.

1346234—Tide controlling mechanism, William G. Shelton, New York.

1346273—Torpedo director, A. del Solar, Boston, assignor to Alfred R. Shrigley, trustee, Boston.

1346279—Screw propelled tow-boat, Thomas R. Tarn, Brooklyn, N. Y.

1346309—Submarine mine, G. E. Elia, Rome, Italy, assignor to Vickers, Ltd., Westminster, England.

1346351—Variable speed mechanism, William Wendehold, New York, assignor to Cru Patents Corp., a corporation of New York.

1346354—Boat car, David D. Price, Norman, Okla.

1346720—Means of defense for ships against the attacks of submarines, P. Perone, Rome, Italy, assignor to Societa Anonima Italiana Gio. Ansaldo & Co., Rome and Genoa, Italy.

1346743—Submersible destroying or salvaging vessel, Louis Fink, Philadelphia.

1346760—Construction of ships, G. V. Vitulli, Rome, Italy.

1347120—Ship protector, John Parich, Mount Carmel, Pa.

1347143—Propelling and draft reducing mechanism for ships and boats, C. Driscoll, Coalings, Cal.

1347240—Life buoy, Anton Zubyr, Jersey City, N. J., assignor of one-half to P. Kiselycia, Jersey City, N. J.

1347363—Tide net for ships, Charles F. Dathan, Chicago.

1347372—Life saving device, I. A. Hebert, New Orleans, assignor to the Hebert Life Saving Device Co., Inc., New Orleans.

Business News for the Marine Trade

The Hodge Shipbuilding Co., Pascagoula, Miss., is reported planning to resume operations at its plant, which will be remodeled to permit the building of barges and vessels of medium size.

The Virginia Iron Works, Norfolk, Va., is said to be arranging for an expansion of operations to include ship construction and repair work. A tract of land has been purchased as a site for a large drydock and ship repair plant, which will be built at an estimated cost of \$3,000,000.

The stockholders of the Great Lakes Engineering Works are reported to have approved the sale of its shipbuilding plants at Detroit and Ecorse, Mich., and Ashtabula, O., to Antonio C. Pessano, former president of the company. It is understood operations will be continued at the plants.

The Bethlehem Shipbuilding Corp., Ltd., recently purchased two additional acres at its Fore River works, Quincy, Mass., for expansion when required.

The Robins Drydock & Repair Co., Beard street, Brooklyn, N. Y., has received a contract from the New York & Porto Rico Steamship Co., 11 Broadway, New York, for rebuilding the steamer BRAZON, and converting it into an oil burner. The work is estimated to cost \$1,250,000, including power plant and other equipment.

The Atlantic, Gulf & West Indies Steamship Co., 11 Broadway, New York, is planning the development and construction of facilities at its oil properties, at a cost of \$55,000,000. Of this amount about \$35,000,000, will be expended for new tank steamers.

The Union Construction Co., Oakland, Cal., has contracts to build three oil tank ships.

The Southwestern Shipyards Co., Los Angeles, has a contract to build a number of oil tankers.

The Moore Shipbuilding Co., Oakland, Cal., has had plans prepared for the erection of a 3-story machine and construction shop to be built at an estimated cost of \$105,000. The company has a contract to build a 10,000-ton tanker for the Vacuum Oil Co.

The Kelly Drydock & Shipbuilding Co., Commerce street, Mobile, Ala., is having plans prepared for the erection of a machine shop, 50 x 100 feet. A new power plant will also be erected and a number of auxiliary buildings. The work will be done at an

estimated cost of \$150,000. E. L. Whitney is president of the company.

Freight handling machinery, including cranes, conveying and loading equipment, etc., will be installed on the new municipal docks at Portsmouth, Va.

The plant of the New London Marine Works, New London, Conn., has been placed on the market. The property is improved with a number of buildings, including a machine shop, foundry, power plant, etc.

The Bethlehem Shipbuilding Corp., Bethlehem, Pa., has arranged an improvement program to cost about \$1,000,000, at its Moore plant, Elizabeth, N. J. A number of new buildings will be erected.

The Coughlan Shipyards, Vancouver, B. C., has

contracted with the Canadian government for the construction of docks and terminals in Vancouver, to cost \$3,500,000. A. D. Swan, government engineer, will be in charge of the project.

The College Point Dry Dock & Supply Co., New York, has been incorporated with a capital stock of \$200,000, by G. F. Losche, E. B. Hallett and A. P. Anderson, 34 Nassau street, to manufacture iron and steel castings for marine service, and operate a ship repair plant.

The Union Shipbuilding Co., Fairfield, Baltimore, is constructing an additional marine railway capable of handling vessels up to 10,000 tons deadweight.

The Milford Shipbuilding Co., Milford, Conn., which was recently organized with a capital stock of \$100,000, has purchased 22 acres on the Housatonic river, where a plant for the construction of coastwise trade boats will be erected.

The Electric Steel Shipbuilding Corp., West New York, N. J., recently was incorporated in Delaware with a capital stock of \$600,000, by Frank Knotton, West New York, L. P. Sniffin, Yonkers, N. Y., and H. W. Jarvey, to engage in building steel vessels of various types.

Hoisting and conveying machinery and other freight handling equipment, will be installed at the proposed terminal of the Luckenbach Steamship Co., 44 Whitehall street, New York. The project will include three piers, 1200 feet each, with sheds, warehouses, etc., and will cost about \$10,000,000.

The Trans-Marine Motor Corp., New York, recently was incorporated with a capital stock of \$100,000, by J. A. Lee, O. Sperling and G. Pfeil, 149 Broadway.

The Northport Shipbuilding Corp., Northport, L. I., has been dissolved and has been succeeded by the Northport Shipyards, Inc., which has been organized with a capital stock of \$100,000, by H. E. Bogdich, M. D. Flomenhaft and G. N. Dorney, 244 West 134th street, New York.

The Clifton Towing Co., Brooklyn, N. Y., recently increased its capital stock from \$5000 to \$50,000.

The Georges Creek Steamship Corp., New York, recently was incorporated in Delaware with a capital stock of \$10,000, by Samuel B. Howard, Robert K. Thistle, Harry G. Hand and others.

The Grasso Tube Marine Life Saver Corp., New York, recently was incorporated with a capital stock

Business Changes

The Mesta Machine Co., Pittsburgh, has established a foreign sales office in the Singer building, New York. This office will also be the sales office for the New York and eastern states territory. M. M. Moore, export sales manager, is in charge.

The Alliance Transportation Co., Inc., freight forwarder, is now located in the Kerr Steamship building, 44 Beaver street, New York. Frederick C. Bryant is in charge.

The Enterprise Forwarding System, 3-5 Coenties slip, New York, has entered the field of trucking, lighterage and storage, and has secured lighters, barges and scows for freight or charter. Nolan B. Harviss is one of the staff of the company.

The business of the American Marine Equipment Corp. is now being conducted under the name of Row & Davis, Engineers, Inc., located at 1058-1072 East Grand street, Elizabeth, N. J.

The executive offices and manufacturing plant of George Oldham & Son Co. have been removed from Frankford, Philadelphia, to Scott and McIlenny streets, Baltimore. The new plant will be modern in every detail and will be completely equipped for the manufacture of pneumatic tools and appliances.

of \$250,000, to manufacture life belts and saving devices, by L. Grasso, 106 East 119th street, New York, and others.

The Ocean Repair Co., Brooklyn, N. Y., has been incorporated with an active capital stock of \$22,500, by F. X. Hemmessy, L. P. Reed and H. P. Molloy, 25 Broad street, New York.

The Liberian-American Steamship Co., New York, recently was incorporated with a capital stock of \$500,000, by Robert K. Thistle, Samuel B. Howard and A. Roy Meyers.

The Trans-Steamship Corp., New York, has been incorporated with a capital stock of \$100,000, by Robert Suskind, George Kagy and John L. Kaufman.

The Warren Maritime Co., Boston, recently was incorporated with a capital stock of \$100,000.

The International Star Line recently was incorporated in Delaware with a capital stock of \$1,200,000, by Charles B. Bishop, S. P. Bayard Jr., and E. H. Oebeltree, Wilmington, Del.

The Gulfport Fruit & Steamship Co., Inc., Gulfport, Miss., recently was incorporated with a capital stock of \$100,000.

The shipping board has sold the Merrill & Stevens ship yard at Jacksonville, Fla., to E. Neff, of the Neff Trading Co., Savannah, Ga., for \$1,700,000.

The city of Wilmington recently purchased the Liberty Shipbuilding Co.'s yard at Wilmington, N. C., for \$37,500.

The Newark Welding Co., 10 Lillie street, Newark, N. J., has been incorporated by Peter Barnes and others.

The Camden, N. J., harbor commission has awarded the contract for construction of a 102 x 472-foot pier on which will be built a \$500,000 marine terminal. The Tilt-Hargan Co., New York, has the contract.

The Mackinac Co., Pawtucket, R. I., recently was incorporated to build vessels, etc., with a capital stock of \$50,000, by Lowell Emerson, William K. Toole and Archibald C. Matteson.

The Portland Electric Welding Co., Portland, Me., recently was incorporated with a capital stock of \$50,000, by R. V. McIntosh and G. L. Brooks.

The East Boston Welding Co., Inc., Boston, has been chartered with a capital stock of \$15,000, by A. B. Finlay, Clarence G. Boyden, Somerville, Mass., and George N. Benoit.

The Turbigas Motors Co., New York, was recently organized by R. R. Reynolds, and A. Moehring, 8 Marcy avenue, Brooklyn, N. Y., to manufacture internal combustion engines.

The Torino Corp., New Bedford, Mass., recently was incorporated with a capital stock of \$10,000, to build motor boats, etc., by Myron J. Brown, William E. S. Strong and Frank J. Wall.

The Harbor Scaling & Paint Corp., New York, ship repairing, has been incorporated with a capital stock of \$5000, by M. C. Ochs, C. E. Milbury and J. Sullivan, 21 State street, New York.

Repairs are being made at the ship repair plant of James Shewan & Son, Brooklyn, N. Y., which was recently damaged by fire.

Sorrentino Bros. & Co., Brooklyn, N. Y., ship cleaning, recently was incorporated with a capital stock of \$25,000, by A. E. Rahm, T. and C. Sorrentino, 1125 Forty-first street.

The Keans Transportation Co., Boston, has been incorporated to build vessels, shipyards, etc., with a capital stock of \$150,000, by M. M. Dillaway and George L. Dillaway, both of Wakefield, Mass., and Doris Kinney, Hudson, Mass.

Quirk Bros., New York, ship brokerage, recently was incorporated with a capital stock of \$5000, by G. J. Carriek, T. F. and J. H. Quirk Jr., 17 Battery place.

The Bayside Shipyards, Queens, N. Y., has been incorporated with a capital stock of \$25,000, by T. Rumney, W. A. Lippincott and J. W. Ripley, Flushing, N. Y.

The capital stock of the Standard Steamship Co., New York, recently was increased from \$100,000 to \$450,000.

The Glassmann-Bartha Welding Corp., New York, recently increased its capital stock from \$5000 to \$100,000.

New Trade Publications

OXYHYDROGEN GENERATING APPARATUS.—The Electrolabs Co., Pittsburgh, has issued a booklet describing the special features in the design and construction of its apparatus for producing oxygen and hydrogen. It also lists the companies which have made installations of the equipment.

PROPELLERS.—A catalog has been issued by the H. G. Trout Co., Buffalo, describing with the aid of illustrations its facilities for turning out propellers and marine engines. The views show the foundry; machine shops and equipment, particularly special machines; pattern shop showing the exceptionally large number of propeller patterns made; large propellers, measuring from 15 to 18 feet in diameter and weighing from 12,600 to 28,000 pounds; and finally marine and stationary engines.

WINDLASSES.—The American Engineering Co., Philadelphia, has issued a catalog describing its complete line of windlasses, including the spur geared, worm geared, and hand power types, together with the various modifications in their designs. A detailed description and an illustration of each unit is included in the booklet.

FANS.—An interesting illustrated catalog, covering the salient points of ship ventilation, has been issued by the American Blower Co., Detroit. It points out that the rapid climatic changes, to which all ships are subject, demands forced and positive ventilation for the sake of the cargo and passengers, and describes in detail its different types of ventilating systems, developed to meet the requirements of various classes of ships, such as passenger liners; cargo ships; refrigerator ships, both meat and fruit; cattle ships; and lake and river boats. It also contains illustrations of well known vessels which are equipped with these installations.

OIL BURNERS.—A leaflet has been issued by the MacLeod Co., Cincinnati, describing its burners that are fitted for almost any industrial application. These include alcohol or kerosene hand blow torches for brazing, preheating, etc.; compressed air outfits; fan blast types; combination oil and gas burners; swinging type burners for open-hearth furnaces, etc. It also contains a typical layout for an oil burner equipment.

GLASS.—The Triplex Safety Glass Corp. of America, New York, has issued an illustrated booklet in which it describes the merits of its glass, an invention of war days. This consists of two or more sheets of glass, bound together by a transparent, shock resisting material to make it valuable in marine work. It can be used on submarines for periscopes; for bridge screens, watch stations and pilot houses on commercial vessels, destroyers and battleships; and for port lights, windows, and scuttle lights on passenger vessels and freighters.

REAMERS.—The Wetmore Reamer Co., Milwaukee, has issued a 4-page leaflet describing a reamer set, consisting of a roughing reamer, a semifinishing reamer, and a floating finishing reamer, particularly adapted to the reaming of engine cylinders. Illustrations of all the tools are included, as well as a phantom of the floating finishing reamer, showing the details of its construction.

ROTARY SCRAPERS.—The Rotary Scraper Co., Inc., New York, has issued a leaflet describing the design, operation and use of its scraper machine designed for removing rust and paint from all metallic surfaces; scaling of boilers, grinding, buffing, polishing, drilling, reaming, etc. Another leaflet issued by the company gives the list of parts and directions for use of the scraper machine.

DIESEL ENGINES.—The Worthington Pump & Machinery Corp., New York, sets forth its engines and auxiliaries for deep water motorships of large tonnage in a 4-page leaflet just issued. The advantages of motorships are discussed.

WATER PURIFIER.—The Barnstead Still & Sterilizer Co., Boston, in a booklet recently issued, points out the problems arising from the use of impure water

and describes a number of its stills that remove gaseous, organic, and inorganic matter from water and render it chemically pure.

COAL AND ORE HANDLING MACHINERY.—The Wellman-Seaver-Morgan Co., Cleveland has issued an attractive catalog describing by means of photographs, blue prints, and text its unloaders, car dumpers, ore handling bridges, transfer cars, boat loaders, bucket handling cranes, excavating buckets, weighing laries, etc. A separate booklet descriptive of car dumpers has also been issued, containing more extensive information on this subject than contained in the former book.

REFRIGERATION.—The Clothel Co., New York, has issued a catalog describing numerous sizes and designs of its mechanical refrigerating machines and boxes. The system is adaptable to the marine field. Much interesting information is given concerning the refrigerating equipment, cold storage temperatures, specific and latent heat of various food products, etc. Several photographs of this device are included, together with a partial list of ships in which installations have been made.

BOILER TUBE CLEANER.—Hamilton & Hansell, Inc., New York, have issued a pamphlet describing a system developed by Swedish engineers for boiler tube cleaning. This is claimed to be efficient and easy to operate. The pamphlet is illustrated with a few line drawings and contains a number of testimonial letters from users.

LOGS.—Hamilton & Hansell, Inc., New York, have issued a leaflet describing the design and use of the log developed by a Swedish firm. A description of the different parts of a complete log installation is given together with testimonials of its exactness and reliability.

SHIPBUILDING.—The Staten Island Shipbuilding Co., Staten Island, New York, has issued a booklet describing, by means of photographs, its repair yard at Port Richmond and its new plant at Mariners Harbor. Other pictures show the different types of vessels built by the company, including pleasure yachts, mine sweepers, ferry boats, tugs, lighters, and steamships. A tabulation of the capacity of the yards and foundry is given, and also a list of some of the company's clients.

PURIFIERS.—Some interesting facts concerning the different methods for purifying water are contained in a booklet issued by the Jewell Polar Co., Chicago, together with brief statements about the operation of its stills. The pamphlet also contains a few illustrations of the stills; a phantom illustration, showing the working parts; and a list of the companies which have installed this system.

OAKUM.—An attractive book has been issued by the George Stratford Oakum Co., Jersey City, N. J., containing a description of its various classes and grades of oakum, used for all forms of calking, such as seams and decks of vessels and caissons. Detailed descriptions and photographs of all grades of oakum manufactured by the company are given and a number of boats are shown which have been calked with this product.

OIL ENGINES.—Fairbanks, Morse & Co., Chicago, have issued an illustrated catalog in which the construction details and principles of operation of their oil engines are described. These engines are manufactured in sizes from 30 to 300 horsepower. The booklet is amply illustrated with photographs of the various types of engines. A large part of the book contains illustrations and descriptions of vessels using these engines.

MARINE APPLIANCES.—An attractive 206-page encyclopedia has been issued by the McNab Co., Bridgeport, Conn., describing the large variety of appliances handled by this firm. Various kinds of compasses, anchors, boiler and engine appliances, miscellaneous fittings, propellers, gauges, and numerous types of indicators, lights, steering apparatus, whistles, telegraph systems, etc., are fully described.